

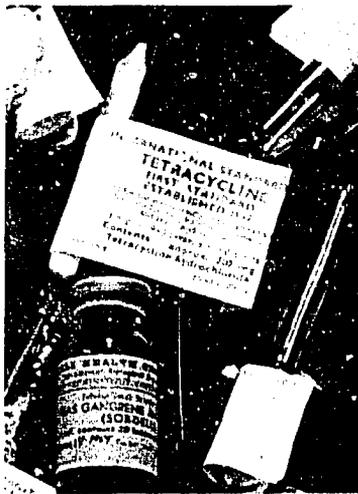


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HEALTH CARE FINANCING IN DEVELOPING COUNTRIES

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Dieter K. Zschock, Ph.D.



MONOGRAPH SERIES

HEALTH CARE FINANCING IN DEVELOPING COUNTRIES

by

Dieter K. Zschock, Ph.D.

**AMERICAN PUBLIC HEALTH ASSOCIATION
INTERNATIONAL HEALTH PROGRAMS
MONOGRAPH SERIES
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Project Director**

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FOREWORD

The Office of Health of the Agency for International Development in its efforts to promote and encourage primary health care has developed a number of activities in support of this goal with the assistance of the American Public Health Association. The International Health Programs Monograph Series constitutes one of those activities, and this monograph represents the first of a number to follow.

It is our hope that the issues addressed by this series will contribute to international health through dealing with topics which merit additional concern, renewed emphasis, and will focus attention on neglected aspects of health system development.

This effort is part of a continuing expansion of the Agency's work in health care delivery which supports the basic human needs emphasis of the U.S. foreign assistance program, now a central and pivotal part of U.S. development assistance activities.

We hope readers will find this volume useful, and will make their support for this activity known to the American Public Health Association along with suggestions for topics which merit attention for the planning of future monographs.

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FOREWORD

As the thrust for achieving more adequate levels of "health for all by the year 2000" gains momentum, increasing attention is focused on finding appropriate solutions to the complex problems of expanding and extending health care.

Given the heavy burden of illness, the scarcity of resources, and the lack of adequate input of previous systems, it is increasingly apparent that new approaches must be found. With the recognition that the conventional patterns of curative, hospital-based, high technology medicine do not offer adequate solutions, a growing emphasis is being placed on promotion of health through more integrated actions of health care, sanitation, education, agriculture, transportation, and a renewed emphasis on participation by individuals and communities stressing the need for utilizing previously untapped resources.

Numerous challenges are posed by this effort, pointing up the many unanswered questions, unsolved problems, inadequate information sources and unexplored issues.

In addressing this, the American Public Health Association has established a Health Information Exchange through which it generates, collects, analyzes, and disseminates information on issues in health care delivery. As a part of this effort, a monograph series will review some of the critical subjects of concern such as comprehensive planning, manpower development, financing, environmental aspects of health programs and mobilization of the private sector. These reviews strive to synthesize available knowledge in a format of interest and use to individuals concerned with the planning and implementation of health care programs.

Problems of financing are fundamental to extending health care, but have received relatively little attention. In this first monograph, Dr. Zschock provides an overview of basic issues regarding health care financing, in terms easily understandable to non-economists. The author looks at important questions relating to determinants, resources, and alternatives. We hope that the volume will increase understanding of

these issues and assist in the complex search for appropriate methods of improving health around the world.

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Others who have commented upon a draft of the monograph include Dr. Dorothy P. Rice, Director, National Center for Health Statistics, U.S. Department of Health, Education and Welfare; Dr. Kenneth Farr, Office of International Health, U.S. DHEW, whose office sponsored the earlier field research; and Dr. John A. Deering, Deputy Director, National Institute on Alcohol Abuse and Alcoholism, DHEW. The author also benefited greatly from participation in a World Health Organization study group on health care financing which met in Geneva in November of 1977. In revising the draft for publication, the author received incisive criticism of style and continuity of the analysis from his colleague at Stony Brook, Professor Homer B. Goldberg. Whatever credit the final product merits, the author shares appreciatively with these most helpful critics; for its faults, he accepts sole responsibility.

Dieter K. Zschock

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INTRODUCTION

Health care is a basic human need, as are food, clothing and housing. It is not difficult to tell when people do not have enough of these essentials to enjoy a minimally adequate standard of living. In most developing countries, deficiencies in meeting these needs are so extensive that the attainment of minimal adequacy remains a distant goal. Nevertheless, its attainment has become a primary concern of our time. This monograph focuses on basic issues involved in the financing of health care in developing countries. These include defining the dimensions of the health sector, identifying and evaluating the sources of health care support, and analyzing the implications of research findings on health care financing.

While the literature on health conditions and health care delivery in developing countries is relatively extensive, it is very limited in dealing with the question of health care financing. A few studies have analyzed the allocation of expenditures among different types of health care and among different segments of the population. Others have examined the distribution and utilization of health care practitioners, facilities and expendable supplies. Sources of financial support, however, remain a neglected area of research.

The objective of this study is to help health planners and administrators, as well as government and private sector officials concerned with resource allocation in the health sector, understand the basic issues in health care financing in developing countries. The reader is thus assumed to be familiar with the major health problems in developing countries but not with the economic analysis of financing. While the analysis is presented within a conceptual framework of economic principles, its use of economic terminology has been kept to a minimum.

Chapter I deals with the definition of health care, as well as with the determinants of demand for health care. The term 'health care' is used generically to refer to activities specifically intended to reduce morbidity and mortality. This definition cannot avoid being somewhat ambiguous, especially with reference to the prevention of illness and saving of lives. Throughout the monograph, a relatively narrow definition of health care

is used. This allows for better conceptualization of the issues and it is more useful for practical purposes, such as justifying the allocation of more money to the health sector.

Chapter II describes the major sources of health care financing used in both advanced and developing countries, with either market-oriented or centrally-planned economies, and assesses the level of health care support that various sources of financing can be expected to provide. The term 'financing' in this study refers to sources and levels of financial support; it must be differentiated from the term 'expenditures' which refers to the allocation of funds to specific health care activities and segments of the population. The focus in this study is on financing rather than expenditures.

Chapter III considers how one goes about determining how much financial support should be allocated to the health sector. It will review a number of analytical models that can help determine appropriate support levels with the necessary reservations about their practicality and reliability. This chapter also introduces a number of criteria for evaluating how appropriate various sources of health care financing are, not only for raising support levels, but also for increasing efficiency and assuring equity in the use of funds. These and other criteria are crucial in deciding what sources of financing to draw upon in pursuing various health care objectives.

While the first three chapters deal with health care financing largely in abstract terms, Chapter IV summarizes some of the limited data available on sources of financial support in developing countries. It reviews studies of aggregate support levels and of national health insurance and social insurance as principal sources of health care support, and it shows how health care is financed in China whose community-based health care system is often cited as a model for the expansion of primary health care in developing countries. This chapter also summarizes the findings of several case studies of health care financing in developing countries that reflect the limitations of research on this subject.

In its Conclusion, the monograph summarizes a number of basic problems in the financing of health care in developing countries and indicates the directions in which to look for solutions. An important but potentially controversial conclusion that emerges from this analysis is that in many developing countries, health care will require significant increases in financial support even after a number of other fundamentally important steps have been taken to make health care systems serve the basic health care needs of an entire population. This conclusion should not be interpreted as an unconditional endorsement of

efforts to increase levels of health care financing in general. On the contrary, the recommendation to consider allocating additional resources to the health sector is conditional upon first arriving at a better understanding of the problems of health care financing derived from intensive country studies. In virtually all developing countries, additional support for health care must be linked with—and in many cases subordinated to—major changes in the technology of health care delivery, improved coordination among health sector activities, and a basic commitment to the expansion of health care coverage so as to reach all of a country's population by the year 2000, which is a basic objective set by the World Health Organization.

The monograph draws upon a growing body of literature on the economic aspects of health care delivery in developing countries. Publications most directly relevant to the subject at hand are included in the Bibliography. References in the text are keyed to this bibliography.

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I

DETERMINANTS OF HEALTH CARE FINANCING

How much countries spend on health care as a proportion of their total national incomes depends on how much they value health care in comparison with other categories of goods and services. While health care is universally regarded as a necessity, it is difficult to assess its relative importance in providing a minimally adequate standard of living when compared with other basic needs, such as food, clothing and housing. The difficulty is compounded by the fact that health care is perceived as an occasional need by most individuals, while food, clothing and housing are daily needs. Thus, health care expenditures can be postponed until the need arises while the cost of other necessities must be borne on a continuing basis.

Some types of health care also are different from other necessities in that they benefit groups of people collectively—e.g. inoculations against communicable diseases, malaria control, and environmental sanitation—and thus require joint financing rather than individual household payments. Another difficulty in analyzing health care financing is that the maintenance and improvement of health status depend in part on improvements in other areas, such as nutrition, housing and education. Expenditures in these areas to some extent can be regarded as substitutes for health care expenditures. (3, 51, 61) This makes it more difficult to determine just how much a country should spend on health care. It will be useful, therefore, to begin by defining the health sector and by identifying several conceptual problems that obscure the sector's boundaries and its role in the process of social and economic development.

A. Definition of Health Care Expenditures

Health care may be defined as a commodity, comparable to other goods and services, in that individual households and many public and private organizations are willing to pay for it out of their incomes or revenues. (15, 48, 59, 60, 62) By identifying the nature of this commodity, one arrives at a definition of the health sector. In defining the health sector, one must distinguish between curative and preventive health care

because the latter allows for considerable differences in interpretation as to what specific activities to include or exclude in the definition. It also is relevant, in this context, to show how the concept of an 'investment expenditure' is used differently in the economic analysis of health care financing, compared to its use in a typical health care budget. Another conceptual question that one needs to address concerns the extent to which one should count the costs of education and training of health practitioners and the production of health-related research and information as health sector expenditures. These considerations, discussed below in some detail, will show that countries may (and in fact do) define the limits of their health sectors differently.

1. Limits of the health sector

Depending on their level of economic development and the organization of their health sectors, countries spend anywhere from two to ten percent of their total national incomes on health care. International comparisons of levels of health care expenditures, however, are precarious, in part because of differences in what health-related activities are included and excluded, and in part because data on health care expenditures are incomplete in most countries, but particularly so in developing countries. For a financial analysis, one can define the health sector in terms of its institutions and their budgets. However, data availability is often limited to the budget of the ministry of health and of a social insurance system where it exists. Usually, no financial data are available in developing countries on other public agencies that provide health care and on private health care institutions and their sources of support. Another difficulty in identifying the financial dimensions of the health sector is that not all expenditures of ministries of health and of social insurance systems are for health care. Either or both organizations may administer old age and invalidity pension payments, for example, which are not usually considered to be health care expenditures. In a number of countries, ministries of health operate various welfare services, such as child care centers, only some of whose functions would normally be considered as health care. These considerations illustrate some of the difficulties one faces in identifying the health sector as represented by its major organizational entities.

A complete definition of the health sector would encompass all the services rendered by health care practitioners and the institutions through which these services are administered. This definition includes medical doctors, nurses, para-medical personnel, dentists, pharmacists, preventive health care workers, administrative and other support personnel, and all the goods and services they provide through health care

institutions, such as hospitals, clinics and pharmacies, and through preventive health care programs. To this definition, one might add a number of other health-related activities, including programs for supplementary feeding, family planning, sanitary and safety inspection, and pollution control. Usually, such activities are included in a definition of the health sector if they are performed by health care practitioners or through health care institutions. In many countries, however, these types of activities are performed outside the usual limits of the health sector. They might be performed under the auspices of the education, agriculture or labor ministries. Many developing countries include in their health sectors certain programs in environmental sanitation, particularly in the rural areas, but this is not generally the case in economically more advanced countries. Finally, in developing countries, the question must be resolved whether to include or exclude traditional practitioners of faith healing, midwifery, and herbal medicine in defining the limits of the health sector.

Which of these many health-related activities should a country include in defining its health sector for purposes of a financial analysis? A narrow definition of the health sector is preferable if ones objective is to argue the need for greater financial support of the principal health sector institutions. A broad definition, which might include a number of health-related activities in other sectors, would be preferable if ones objective is to increase coordination of health care provided through the principal health sector institutions with health-related activities carried out through other organizations. A review of health sector assessments and plans, as well as of many expert studies and recommendations, shows that there is considerable variability in defining the limits of the health sector. (2, 7, 45, 63, 65, 66, 76, 78) One can generalize, however, that in developing countries the definition tends to be broader than in more advanced countries, even though the data base is usually far more limited in the former than in the latter. Reasons for a generally broader definition are the greater deficiencies in environmental health care prevalent in developing countries, and the extensive use of traditional health care practitioners by the population for curative care. Because it is unlikely that a uniform definition of the health sector will ever evolve, it is important to indicate clearly what has been included in the definition whenever one analyzes the allocation of funds to the health sector.

2. Curative and preventive services

By far the largest proportion of private incomes and public revenues allocated to health care is expended for curative goods and services. Yet,

there is strong evidence to support the contention that preventive health care is far more effective in improving health status than curative health care. (4, 17, 40, 47) What, then, explains the predominant pattern of allocating most resources to curative care? One part of the answer is that expenditures on preventive care are more easily postponed than are expenditures on curative care. The lower a household's or a country's income, the more likely is it that only the most immediate needs are provided for. In the case of health care, curing acute illness obviously represents a more pressing need than reducing latent illness or the risk of future illness.

Another part of the answer is that health care practitioners, by and large, are trained and experienced primarily in providing curative rather than preventive health care. This is not surprising, since people in all societies at all levels of development generally tend to demand health care when they are ill, rather than when they are well. The medical profession has always responded to this effective demand, rather than making a concerted effort to create demand for preventive health care. There are, of course, significant exceptions to this generalization, such as mother and child care, public health campaigns, and health promotion through specific education and information programs carried out by health care practitioners.

Yet another explanation for the relatively low priority usually assigned to preventive care in health sector financing is that many preventive measures are not generally regarded as health care activities. For example, routinely adhering to a well-balanced diet, consuming only potable water and disposing of human and animal wastes in a sanitary manner, and living in relatively healthy environments are all measures that prevent illness but that are not generally considered to involve health care activities. The better educated people are and the higher their incomes, the more they tend to practice these preventive measures. Yet, as countries develop, new risks of illness arise against which new and different preventive measures must be designed and implemented.

Considering their importance, it remains unclear which of the many preventive measures that one can think of should be included in a definition of the health sector for purposes of financial support. Many developing countries include supplementary feeding programs for high-risk and malnourished segments of the population. They also tend to include water and sanitation projects for the poorest segments of the population. The need for such activities as a basis for including them in the definition of the health sector may be convincing. However, only in countries where there is already a strong public commitment to the health sector is this likely to result in greater financial support. In

countries that do not place a high priority on the development of the health sector, it may be more practicable to include environmental sanitation projects and even certain disease control programs in the development budgets for agriculture, mining, manufacturing or public works and to conserve health sector resources for curative health care.

3. Consumption and investment

Is health care a consumer item, intended directly to increase the welfare of recipients, or is health care a means of increasing output in the economy, which would make it an investment item? This question reflects the distinction that is usually made in economic analysis between consumption and investment expenditures. (44) If one looks at investment expenditures in the budget of a ministry of health, however, the term 'investment' has a different meaning. There it refers to expenditures on physical plant and equipment for a hospital or some other type of health care facility.

Conceptually, the meaning of the term investment in a health care institution's budget is analogous to its use in economic analysis. Additional investment in physical plant and equipment provides the means for more health care delivery. In economic analysis, the term investment also refers to the expansion of productive capacity. In the economic analysis of health care, however, the meaning usually given to the investment concept is the increase in the productive capacity of the factors of production—labor, land and capital—that may result from health care, rather than the increased capacity of health care institutions to deliver more health care. If health care either restores or maintains the well-being of people, including their productive capacity, but does not add to their productive capacity, it is a consumption good. Only if it can be shown that health care also increases the productive capacity of people and of other factors, such as land and physical capital, can one consider health care expenditures—at least in part—as investment.

The health sector in developing countries is in many cases disadvantaged in its quest for increases in financial support because of the widely held view that health care is primarily a consumer good, rather than an investment good. While one might criticize the ethical insensitivity of this point of view, it nevertheless is likely to prevail in many decisions about resources allocation unless it can be proven that health care does indeed increase productive capacity in the economy. The strongest arguments in favor of increasing support levels for health care are those that convincingly show what types of health care improve-

ments contribute directly to increasing a country's capacity to produce other goods and services. Improvements in environmental sanitation and other preventive health care are widely regarded as being more productive as an investment than curative health care. It is for this reason that the definition of the health sector in many developing countries is likely to be broader than in more advanced countries where most of these services are routinely provided for, in large part through public works agencies and private expenditures on housing, and to a lesser extent through health care institutions.

4. *Education and training*

In defining the limits of the health sector, one must also decide to what extent expenditures on the education and training of health care practitioners should be included. In most countries, the formal education of doctors, nurses, dentists and pharmacists takes place in schools that operate under the aegis of a ministry of education rather than a ministry of health while their practical training occurs in health sector institutions. Para-medical health care practitioners are usually trained entirely within health care institutions. It would be correct to include as a health care expenditure the cost of practical training of practitioners that takes place within the health sector and to exclude the cost of formal medical education that takes place in the education sector, but only if the practical training serves a health care delivery function. Practical training usually serves this function to some extent, but it also serves the purpose of complementing formal education. The question therefore arises whether to consider the costs of practical training as an education or a health sector expenditure. In countries that place a higher priority on education than on health care, one would want to include as education expenditures the costs of practical training, including the costs of training para-medical personnel. This may not be acceptable to the ministry of education, however, if it were expected to cover the corresponding costs from its financial resources.

What about an alternative argument, namely that all costs of professional education and practical training of health care practitioners should be counted as health sector expenditures? This would increase by a substantial amount the level of health care expenditures but without any effect on health care delivery. In support of such an argument, one might compare the health sector with the armed forces, whose expenditures include the cost of training military personnel. Except for the armed forces, however, the cost of educating professionals and most para-professionals usually is borne by the education sector. Thus, it is

more logical—if not always practicable—to assign the costs of educating and training health care practitioners to the education sector.

5. Research and information

Health care-related research and information programs in developing countries usually account for a very minor portion of total health sector expenditures. One might ask whether developing countries should not place greater emphasis on promoting indigenous research and on using traditional information systems to disseminate information on health care. Many of them rely all too readily on the transfer of research knowledge and health care technology from the advanced countries, and on using information methods copied from advanced countries that may not be as appropriate for their own circumstances.

In advanced countries, information about health care is to a considerable extent disseminated through mass media and educational programs outside of the health sector, although it may be financed and prepared by health sector institutions. Social services outside the health sector also serve as channels of health care information, or they may help their target populations gain access to health care services or encourage them to use such services more extensively. Thus, in the area of health care information, and possibly also in health care-related research, the health sector in advanced countries depends in part on organizations outside its limits.

This practice may be less suitable for developing countries where these other organizations and channels either do not exist at all or are as rudimentary as the health care system itself. Greater reliance might be placed on the use of community 'health promoters' as disseminators of health information and as facilitators of access to health care services. A number of developing countries are experimenting along this line. Also appropriate for developing countries, however, is the dissemination of health care information through community development projects which usually function outside the health sector.

B. Determinants of Demand for Health Care

While the limits of the health sector are usually defined in terms of supply determinants, as in section A, above, it is equally important to consider the determinants of demand for health care because these define the consumer's perspective of the health sector. Demand for health care is influenced by a number of determinants, including not only the state of one's health and one's ability to pay for health care,

but also by other determinants that are only indirectly or not at all related to these obvious determinants. (50, 67) The question of how much a country should spend on health care, raised at the outset of this chapter, therefore, is not readily answered by referring merely to indices of health status and ability to pay.

Health status and income, to be sure, affect the demand for health care that individuals as well as groups of people and society at large express by allocating some of their respective incomes for the purchase of this particular commodity. An additional determinant, however, is education. The more educated people are, the less likely they are to be ill; nevertheless, more highly educated people tend to demand more health care. Another unusual feature of demand for health care is that the provider is more likely than the recipient to determine what type of health care and how much of it the recipient should purchase. Nevertheless, cost and accessibility of health care do limit the consumption of this as they do any other commodity. The quantity and quality of health care available, as with other commodities, also affects demand. And finally, ability to pay as well as the likelihood of needing health care are so unevenly distributed in society that ways have been found to finance health care that to a considerable extent dissociate consumption from payment. These considerations are spelled out in greater detail in the following sections.

1. Health status, income and education

One might assume that the relationship between health status and demand for health care is very close, but that is not the case for several reasons. Demand can only be effectively expressed as a willingness to purchase a commodity if one has the money to pay for it. People who are poor also are likely to have a high incidence of illness. Poverty, however, limits one's ability to purchase even basic necessities, one of which is health care. Thus, where there is a need for health care the ability to pay for it may be insufficient to satisfy this need. People living in poverty depend on transfer payments (through progressive taxation or charity) from the more prosperous segments of society to meet their basic needs, but these transfers usually are insufficient to meet all basic needs.

Even when people have the ability to pay for adequate health care, however, it has been found that need and demand for health care are not always highly related. (34) Individuals who are ill may not demand health care because they are not aware of their condition. (37) People who are healthy, on the other hand, may demand health care as a

means of preventing illness. Moreover, since there is no clear dividing line between being ill and being healthy, and since self-perceived illness is a very inaccurate index of actual morbidity, it is not surprising that—even after controlling for income and other determinants of demand for health care, discussed below—the demand for health care may vary among individuals.

Education can influence health status, as well as demand for health care. (39) A relatively high level of formal education often includes specific health-related knowledge, as well as enabling people to obtain health-related information when they need it. Education alone may thus be directly effective in helping people to maintain good health. It also is likely to make people more cognizant of the role that health care plays in maintaining or regaining their health; in other words, educational attainment can make them more effective users of health care. Educated people may for that reason alone demand more health care than uneducated people.

Education and income, moreover, tend to be highly related in most countries. More highly educated people thus also tend to have the means to purchase more health care than poor people. In many countries it is common practice for providers of health care to charge high-income patients more per unit of health care than they would charge patients with lower incomes. It may also occur that at higher income levels, people prefer to purchase health care that is either of higher quality per unit of service or that has greater conveniences attached to it. The combination of these hypotheses concerning the relationships between health status, education and income have been tested in a number of research studies. (7, 61) The results more often than not substantiate the relationships suggested here, but the results vary, depending on other related variables that also bear upon the question.

2. Consumer and provider determination

It has frequently been asserted that in the case of health care, providers of the commodity exercise greater influence over the level and composition of demand than do consumers. (48) This assertion is usually based on the assumption that the practitioner has the relevant knowledge to determine how much and what type of health care the patient requires, and that the latter generally lacks such knowledge. The unusual degree of trust and confidentiality that supposedly characterizes the practitioner-patient relationship is considered to be a restraint on the possibility of health care providers misusing this implicit power.

Providers of health care undoubtedly have an unusual degree of

control over demand when compared with the suppliers of other goods and services. In part, this results from their greater knowledge about the commodity, and in part it is the result of how health care is financed. Nevertheless, it would be misleading to assume that consumers of health care exercise little or no influence over the level and composition of their demand. Even in the case of an imminent and serious need for health care, a patient in most cases exercises some degree of independent decision-making power over the type of health care practitioner s/he will consult. After treatment has begun, a patient can still make decisions about accepting or rejecting a practitioner's advice or prescriptions. In cases of less immediate need, a consumer of health care also has discretion over the timing of consulting a health care practitioner, or whether even to act upon a self-perceived need for health care.

In developing countries, where people are generally poorer and less well educated than in more advanced countries, potential consumers of health care have fewer choices because they are poor. Yet, they may exercise choice with greater independence because they are likely to pay directly for most of their health care. They may choose, for example, between traditional and modern medicine, based on their understanding of relative costs and effectiveness. Self-administered treatment, including the choice of purchasing traditional or modern medicines, also is an option that people in developing countries frequently prefer over consulting a health care practitioner. The choices they make may not always be well-advised or effective, but they nevertheless represent consumer decision-making based on cost considerations. It is likely that in advanced countries, with more sophisticated health care and with the more extensive use of indirect payment mechanisms, consumers give up more of their independence of choice than in less developed countries.

3. Cost and accessibility of health care

The consumer of health care bears direct as well as related costs that will determine his level of demand. The direct cost of health care to the consumer is the fee or price he is charged. If this cost is lowered by subsidy—whether through a transfer payment or collective financing—the consumer is likely to demand more than if he had to bear the full cost. (This point will be further elaborated in section 5., below.) In addition to direct cost of health care, a consumer also bears related costs, such as transportation, as well as the potential loss of income he might be earning while seeking health care. The combined total of direct and related expenditures an individual incurs are often referred to as the 'private cost' of health care.

If the private cost of health care increases, either because direct fees or prices rise, or because related costs rise, demand for health care will decline. How much it will decline, relative to an increase in cost, depends on the consumer's assessment of the seriousness of his or her need and on the constraint imposed by his or her level of income. Economists refer to this relationship as the price elasticity of demand. One often assumes that demand for health care is price inelastic, meaning that a certain increase in price will result in a less than proportionate decline in the demand for health care. Price elasticity will vary however, depending on the seriousness of self-perceived need, as well as on the level of the consumer's disposable income. The poorer a person is, the less s/he is able to absorb an increase in the price of health care. The less accessible that health care is to a consumer, the greater its related cost and the less likely, therefore, that a poor person will be able to use it even if its direct cost to him or her is low.

4. Quantity and quality of health care

The quantity and quality of health care available also have a direct influence on demand. In many areas in developing countries, demand may be relatively low because there is not much health care available. One can expect that by increasing the supply of health care, new demand will be created. Even at low levels of income, people probably would be willing to allocate some of it to health care if it is made available. Where people have had access only to traditional health care, they may be persuaded to shift their demand to modern health care.

The quality of health care, however, is at least as important in determining demand as its quantity. Quality, however, is far more difficult to measure than quantity. The quality of a unit of service, such as a patient visit in a health clinic or a certain item of information being disseminated, can be assessed in different ways. One indication of quality is the acceptability of a certain type of health care to the community, another is its impact on health status. Neither can be measured reliably.

In particular situations, there may be important trade-offs between the quantity of health care provided and its quality. By merely increasing the number of patient visits per hour, for example, practitioners probably reduce the quality of health care given each patient. It is also possible, however, to increase the quantity of health care provided without a decline in the quality of care. Reductions in unit costs of services rendered may be realized by more fully utilizing health care facilities and personnel. This may be accomplished, for example, by

providing missing items, such as medicines and other supplies. Shortages in these items often cause health care facilities and practitioners to be underutilized. Or one might discover that by providing practitioners with certain (not necessarily expensive) incentives, both the quantity and quality of health care can be increased with less than proportionate increases in costs.

5. Risk distribution and externalities

After the above determinants of demand have been considered, two reasons why demand for health care is different from demand for most other commodities remain to be explained. These two reasons are, first, that the risk of illness is unequally and—for any one person—unpredictably distributed among the population, and second, that health care benefits not only the individual consumer but also others. An understanding of these two reasons is important in the discussion of sources of financing of health care in the following chapter.

If all health care were paid for by the individual recipient of such care, the unequal and largely unpredictable distribution of illness would result in a correspondingly uneven distribution of the burden of payment. Under this method of payment, inequality of income distribution and of educational attainment, as well as different perceptions of illness and of the need for health care would further complicate the financing of health care if one were to rely entirely on direct payment by individuals for the health care they receive. These inequities have led most advanced countries to design and implement collective mechanisms of financing health care.

The risk of incurring health care costs can be shared among many people through insurance or similar schemes. The costs can be shared on the basis of equal-sized contributions into a common fund, or on the basis of payments that are geared to ability to pay and/or to the actuarially determined incidence of morbidity in various population groups. The sharing of health care costs among many people is justified further to the extent that the cure or prevention of many illnesses benefits others as well as the immediately affected person. Moreover, the control of many diseases is best accomplished either through mass inoculations or direct attacks upon the disease vector, rather than through individual health care.

The collective financing of health care also creates some problems, however. Since it assures individuals a share of the benefits, some of them may evade their responsibility to contribute to the total support cost. This problem can be minimized by requiring individual bene-

ficiaries to pay some portion of the total cost directly. Yet another problem in collective financing is caused by the fact that the private cost of using a collectively supported health care system is less than if an individual had to pay the full share of the total cost; i.e., the relatively low private cost induces an increase in the demand for health care. (23) With use thus increased, the system's total cost rises and individual contributions to the common pool will have to rise as well. Increased use of health care by those in greatest need is desirable, of course; however, when a private demand exceeds the collective ability or willingness to pay the increases in total cost, some form of rationing of health care may be required.

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II

SOURCES OF HEALTH CARE FINANCING

Health care can be supported financially and through in-kind contributions of materials and services from a number of different sources. Most of these sources are used in varying combinations in both market-oriented and centrally-planned economics. These otherwise very different economic systems do not show any inherent differences in the financing of their health sectors. Developing countries also are eclectic in their use of sources. Having found that no one source suffices to meet all health care objectives, they typically resort to a broadening range of support sources in their attempts to expand coverage and improve the quality of health care. A taxonomy of these sources should be helpful in comparing and evaluating their effectiveness and equity. Anyone contemplating new or expanded use of these sources, however, should first evaluate them in terms of these criteria and others outlined below in Chapter III.

The original sources of most health care financing in all economies are the incomes earned by the factors of production, including the wages and salaries of workers, the profits retained by owners of capital, and rents received by owners of property. In most countries, however, including those with predominantly market-oriented economies, consumers give up much of their decision-making power over the level and allocation of health care financing to collective mechanisms, typically including both financial authorities and health care providers. Even where households and businesses make substantial direct payments for health care, these tend to be greatly influenced by the pattern of financing through indirect payment mechanisms. One thus needs to look at both direct and indirect financing, with particular attention to their interdependence. Conventionally, however, one makes a distinction between public and quasi-public sources of funds and private sources of funds.

A. Public and Quasi-public Sources

This category includes general tax revenues, deficit financing, sales tax revenues, social insurance, and income from lotteries and betting operations. These sources will now be discussed in some detail, roughly in order of their relative importance for most developing countries.

1. *General tax revenues*

General tax revenues are the single most important source of health care support. In most developing countries, however, the proportion of total national income collected as general tax revenues varies widely. In a sample of 47 such countries, whose tax efforts were studied by the International Monetary Fund, this proportion—referred to as the 'tax ratio'—varied from four percent to 31 percent. Advanced market economies of Western Europe and North America have an average tax ratio of 26 percent, excluding social insurance contributions. (10) Developing countries with low tax ratios are unable to support health care anywhere near adequately through general tax revenues, even though this typically is their single most important source.

Duties on imports and exports are usually the most important component of general tax revenues in low-income countries. Countries that export oil and minerals are in an especially favorable position. Because of generally strong demand for these commodities, increases in duties can be passed on to consumers in other countries. Countries whose exports are made up primarily of agricultural products are in a less favorable position because of weaker world-wide demand. The second most important source, taxes on domestic business transactions and profits, tend to yield more revenues in developing countries than income taxes, the third most important source. Property taxes in low-income countries contribute least to several tax revenue among these four principal sources. As national income grows, however, income and property taxes usually gain in importance, relative to foreign trade and business taxes.

The level of support for health care from general tax revenues can be increased either by reallocating funds from other publicly financed services, or by at least maintaining the health sector's share of public funds as general tax revenues rise. The latter, in turn, can either rise proportionately or—more likely—the tax ratio will change as national income grows. Although the tax ratio tends to be higher in more developed countries, this depends in large measure on a country's willingness to impose larger tax burdens. Some sources of general tax revenue

also increase more than others with respect to rising national incomes, as indicated above.

This brief discussion suggests that if developing countries seek to increase funding of health care from general tax revenue, they have essentially two major alternatives. Considering that developing countries with similar characteristics of national income levels and sources of general tax revenues nevertheless tend to have substantially different tax ratios, those with relatively low tax ratios may be able to increase their 'tax effort', as the IMF study calls it. (10) They would then be able to increase their health care allocations from general tax revenues without necessarily having to increase them proportionately at the expense of other sectors. A more fundamental alternative, of course, would be to increase significantly the proportion of general tax revenues allocated to health care. Such a decision would imply a movement toward increased socialization of the health sector by providing free or low-cost health care services for most or all members of society. There could still remain options concerning the degree of socialization, depending on the extent to which the use of publicly financed health care would require direct payment by users and be supported also by other sources of funds, such as insurance (see below).

Although general tax revenues tend to be the single most important source of health care financing in most countries, in developing countries they may not be the most reliable source because of the uncertain relationship between budgeted funds and their actual availability and disbursement. Budget projections usually involve overestimates of tax collections. When funds actually available for disbursement fall short of expectations, immediate priorities may differ from earlier budget projections. The health sector, often lacking strong political support, may then receive proportionately lower disbursements than had been projected in an initial budget allocation. In addition, the allocation of general tax revenues within the health sector may be subject to political pressures that impair the efficiency and equity of health care delivery.

2. Deficit financing

National financial authorities can augment general tax revenues through borrowing, both domestically and internationally. Such borrowing is usually referred to as 'deficit financing'. It involves a decision to spend funds currently that will over some future period of time have to be repaid to the source of such loans. Repayments will have to be made from future general tax revenues, which will reduce the level of public

funds available for future expenditures. In addition, the net yield of expendable funds from loans is less than the yield from current general tax revenues by the amount of the interest that has to be paid on outstanding loans. On the positive side, borrowing can help expand health care facilities more quickly and thus provide a broader base of services than could be provided without recourse to deficit financing.

Domestic borrowing by financial authorities must come from domestic savings. An attractively high interest rate might help to increase the proportion of national income that is saved and thus reduce private spending on less essential items. Borrowing from savings to increase health care expenditures may also be considered a politically more acceptable or simply a more expedient way of raising additional revenues for health care than to increase the general tax ratio.

The method typically used for domestic deficit financing is to issue debt certificates, or bonds, with guaranteed interest rates. Demand for bonds by the public is influenced by their real interest rate, which is their nominal interest rate minus the rate of inflation in the economy. Since in developing countries inflation is often already high or increasing, public confidence in a government's financial management of the economy may be low. In addition to uncertainty about the future rate of inflation, potential buyers of bonds also may not trust the government to be able to honor its pledge of eventual redemption of the bonds. Thus, in low-income countries, which do not have high rates of saving in any case, raising additional public revenues through deficit financing may not be a very promising source for health care financing.

Where debt financing of health care has been used, it typically has been for specific projects, such as the construction of hospitals or other specialized physical facilities. These projects may attract investors, but they may not be priority expenditures when a country is trying to expand ambulatory health care into villages and rural areas. Deficit financing also is used with some frequency to build health-oriented environmental control projects, such as water, sewer, and irrigation systems. The more likely such investments are directly to benefit specific population groups, the more likely also that those groups will be willing to help repay the loans and pay the interest on them.

Unless a project that is deficit-financed contributes directly to increased output which can be taxed to service the debt, the repayment must come from either general or sales tax revenues. Depending on the fiscal laws and mechanisms of a country, authority to engage in deficit financing may be limited to national agencies, or it can be exercised by state and local governments, as well as by semi-autonomous or private entities. Whatever the level at which this authority is exercised, however, the

agency doing the deficit financing must also have the power to impose additional taxes or fees, or the power to reallocate current tax revenues in order to service the debt. Otherwise, no one would willingly buy the debt certificates. It is also possible for private entities to issue bonds to raise capital for specific projects. In that case, repayment of the debt must rely on the income that a project yields. Private health facilities could be financed in this manner, provided they are able to charge fees that are high enough to cover current operating costs plus debt servicing.

The other major source of deficit financing is bilateral and multilateral foreign aid in the form of long-term, low-interest loans. Aid agencies usually prefer to limit their loans to the cost of imports required for development projects, although they have also been willing to finance domestic costs when necessary. In some of the least developed countries, in fact, foreign aid has been the major source of health care support, exceeding even general tax revenues. Most foreign aid loans are given in the currency of the donor country, and much of the aid provided by the largest donors requires that purchases be made in those countries. This requirement limits the flexibility of the recipient country and may cause it to purchase relatively high-cost and possibly inappropriate goods and services.

Aid loans usually have long initial grace periods before the first installment has to be repaid, and the repayment period is even longer and may be further extended. Interest charged on such loans is substantially less than for equivalent commercial loans. Thus, governments have in the past readily accepted aid loans because they make immediate progress possible where general tax revenues are insufficient to permit large expenditures on health care. However, excessive deficit financing in the past is already burdening many developing countries with large debt service obligations. Such countries either are not able to accept additional foreign aid loans, or require such loans largely to refinance their outstanding debts.

Disbursement of aid loans usually is completed within three to five years after such loans have been agreed upon between the donor and recipient governments. Aid loans thus constitute only a short-run source of support. In countries where the percentage of general tax revenues allocated to health care has increased in recent years, this has often been the result of counterpart funding requirements connected with the acceptance of foreign aid loans. For many countries it is doubtful, however, that governments will be able or willing to continue the proportionately higher levels of funding once the aid loans have been disbursed.

Foreign aid loans for health care have been a priority of the U.S. Agency for International Development in recent years, and other donor

countries and multilateral sources of loans also have favored health care support. Foreign aid has therefore been an important source of health care support for many developing countries. This foreign aid priority undoubtedly has helped many of them to expand health care infrastructures, but it has also burdened them with rapidly increasing operating expenditure obligations that have to be financed from internal sources.

3. *Sales tax revenues*

Most general tax revenues, as well as most loan funds, are collected and disbursed by national financial authorities. State and local governments may also have the authority to impose taxes on business and household incomes and on property, as well as to engage in deficit financing, but they tend to rely instead on sales taxes and on transfers of funds from the national government to support public sector activities. In only relatively few developing countries, however, have sales taxes become major sources of revenue for the public sector. The major problem is that sales taxes are difficult to administer; they may also be politically unacceptable. Nevertheless, as countries develop, sales taxes usually become increasingly important sources of revenue for state and local governments, together with income and property taxes, as noted above.

Although retail sales taxes are not yet major sources of public revenue in most developing countries, they often are used to finance specific programs, such as health care, in which case they may be a significant source of funds for that particular sector. The practice of 'earmarking' sales tax revenues has some appeal. It noticeably assigns priority to certain sectors, such as education, health and other social services, and may thus make the tax politically acceptable. Earmarked sales taxes are often imposed on the sale of beer, liquor and tobacco products and of recreational services, such as sports events and movies. Sales taxes on these commodities, however, are regressive in their impact, i.e., their burden falls most heavily on low-income consumers for whom the purchase of such goods represents a relatively large proportion of their incomes. Several countries have also imposed sales taxes on agricultural production, in some cases earmarking the revenues for health care and other social services, but the regressivity of such taxes may be an obstacle to their adoption by other countries. Such taxes typically are passed on to the consumer and thus become a burden that weighs most heavily on low-income segments of the non-agricultural population. Sales taxes can be progressive if they are imposed on luxuries, on automobiles and

major appliances, and on other goods and services that are purchased primarily by middle and upper level income segments of the population. the population.

4. *Social insurance*

Social insurance is a system of financing health care, as well as invalidity and old age support, for employed workers by imposing mandatory insurance payments as a percentage of their wages, and by imposing on their employers a similar or somewhat higher payroll tax. In some cases, the government is a third contributor to the scheme, and workers may have to pay a user fee in addition to their wage deductions. The total of these combined contributions, in principle, is actuarially determined on the basis of the incidence of illness and of eligibility for invalidity and old age benefits of the covered population. Wage deductions for individual workers, however, are not determined on the basis of the risks they represent, but rather are a standard percentage of their earnings. The burden of the scheme is thus neutral with respect to earned income, although there is the presumption of unequal benefit distribution in favor of high-risk workers.

Social insurance (often referred to as social security) has been introduced in a number of developing countries and it is likely to be adopted by others that do not yet have it. Its appeal lies in the fact that it taps a major new source of financing for health care. Its principal shortcoming is its limited coverage. Social insurance only covers workers employed in enterprises that are characterized as 'modern' by criteria such as their capital intensity and relatively high productivity. Their comparatively high profits and wages make it possible for them to sustain the high cost of a social insurance system. Although it may be the spearhead of its development efforts, this segment of a developing country's economy typically employs only a relatively small proportion of the labor force. The large majority of the labor force, to the extent that is gainfully employed, works in labor intensive agricultural, artisan, petty trade, and menial service activities that pay low wages and cannot afford to join the social insurance scheme.

Coverage by social insurance can be expanded in the short run by including additional segments of the population, with the first priority usually being family members of the already covered workers. Expanding the system's coverage, however, requires increasing either the level of employer and employee contributions or the proportion of total costs contributed by the government from tax revenues. In the longer run, social insurance coverage will expand as additional segments of the labor

force qualify for inclusion under the system by becoming part of the modern sector of the economy. Alternatively, the balance of supporting social insurance can be shifted proportionately from payroll based contributions to tax revenues. In cases where this has occurred, a social insurance system has evolved into a national health insurance system with universal or near-universal coverage.

Government workers in many developing countries are also frequently covered by insurance that is similar to social insurance. In some countries, one system covers all public sector employees and provides equal benefits for everyone, as is usually the case with social insurance. In many other countries, however, public sector insurance to cover health care and pension benefits consists of many separate schemes for different ministries and agencies, and for different levels of government. Benefits vary greatly in those cases. The financing of insurance for government workers also varies greatly among countries, as well as within countries. Sometimes the government itself serves as the insurer, while in other cases government agencies contract with private insurance companies. Sometimes, the employer pays the total cost of insurance, and sometimes employees are required to contribute through salary deductions.

Despite their need for expanded low-cost, primary health care, most developing countries are supporting hospital-based, doctor-centered programs that are oriented toward curative health care. Social insurance for employees in private industry as well as its government equivalent has reinforced this tendency. In Latin American countries, where social insurance is increasingly dominant in health sector development, this system has in most cases built its own network of curative health care facilities. Health insurance systems for government workers have also in many cases built their own health care facilities. Reasons cited for the separate development of health care facilities for private industry and government employees include the low quality of most publicly financed health care facilities, as well as either the inadequacy or the high cost of private health care.

5. Lotteries and betting

Unless lotteries and betting operations are conducted as private business ventures, in which case their profits are taxed and contribute to general revenue, they frequently serve as sources of earmarked income for health and other social services. Where this is so, lotteries and betting on sports events typically are administered as non-profit, quasi-public enterprises under the auspices of national, state or city governments. In only very few countries is the income from these sources an

important component of total health sector financing. Unless they are very large enterprises, these sources are not likely to yield substantial net incomes. The largest proportion of their intake necessarily goes for prize money to the winners; in addition, they are costly to administer. Net income thus may be only a small percentage of total income. These sources can also be criticized as being particularly burdensome on the earnings of the lowest income segment of the population.

B. Private Sources

General tax revenues and social insurance funds, although they are the major sources of health care support, are not likely to suffice if developing countries want to achieve universal access to health care in the foreseeable future. Foreign aid has enabled a number of countries to make significant progress toward this objective, but it may be difficult to sustain this progress once the aid has been expended. Sales taxes and income from lotteries and betting operations tend to be regressive and thus not very desirable sources of financing. Most developing countries will thus have to rely on a variety of private sector sources of support in their efforts to expand and improve health care more rapidly. Five types of private sources are most likely to be used or advocated: direct financing of health care by employers, private health insurance, charitable contributions, direct household expenditures for health care, and communal self-help. These sources may vary in relative importance and no priorities are implicit in the following sequence of their descriptions.

1. Direct employer financing

In many developing countries, and particularly in certain economic sectors, both private and public sector employers may directly provide health care for their employees. Frequently, foreign-owned enterprises in agriculture, mining, and manufacturing in relatively backward economies will provide at least minimal health care for their workers, sometimes including their dependents. Large domestically owned enterprises in developing countries may also directly finance health care for their employees. These often include mining operations, railroads, construction materials and steel industries. Depending on the size and geographical location of large enterprises, both foreign and domestic, they may either pay for private sector health services or employ medical personnel directly on a full or part-time basis and provide the necessary physical facilities and equipment.

Direct employer financing of health care usually precedes the initiation in a developing country of a social insurance system which may eventually include such employers under its coverage. Frequently, however, employers will continue to provide their own health services if their operations are located in remote geographical areas. In some cases, large enterprises may be relieved of social insurance payment obligations if they operate their own medical facilities and personnel. It may also be that employers provide direct financing for certain types of health care in addition to the coverage provided by the social insurance system. In those cases, the additional coverage provided may constitute a fringe benefit accruing to workers as a result of paternalism on the part of the employer, or won by the workers through collective bargaining. Only rarely, however, are such employer-provided services made available to workers' dependents. Their intent is principally to maintain the productive capacity of the work force.

2. Private health insurance

The difference between social insurance and private health insurance is two-fold. First, private health insurance typically covers only health care and does not include pensions for invalidity and old age. (Separate insurance coverage for the risk of invalidity, as well as life insurance policies may also be available in developing countries.) Secondly, private health insurance is financed through premiums that are based on the actuarially determined likelihood of illness of the individual covered by an insurance policy. Contributions therefore vary in accordance with personal characteristics. Private health insurance can be operated either on a profit or on a non-profit basis, and it can be bought either by individuals or by groups. Group insurance usually covers more people than are individually covered. Individual health insurance policies are so costly to administer that only relatively affluent persons can afford to pay the premiums. Group insurance is cheaper to administer and in most cases premiums are paid at least in part as a fringe benefit by an employer. Either the employer or an employee organization can serve as the collective agent in purchasing a group policy from an insurance company. Only group insurance companies are likely to operate on a non-profit basis, in which case premiums are even lower. Most private health insurance companies, however, operate as business enterprises for profit which increases the cost of coverage. Although private health insurance in principle is purchased on a voluntary basis, employers who purchase group insurance policies for their employees and pay part of the premium as a fringe benefit may nevertheless require contributions

by workers. In addition, to avoid the problem of excessive usage, discussed above in Chapter I, individuals covered by either individual or group insurance policies usually are required to pay part of the cost of medical care on a direct fee-for-service basis.

Private health insurance is more prevalent in countries that do not have social insurance systems. In countries that have social insurance, only those segments of the population that are not covered by that system are likely to buy health insurance if they can afford it. Even under social insurance, however, there is some demand for private health insurance by workers who may want to purchase supplementary coverage in order to have access to higher quality care or to certain types of services not covered under social insurance. Although private health insurance spreads the financial risk of illness and thus substantially reduces the private cost of health services, premiums paid by individuals usually are still so high that only a small segment of the population in low-income countries can afford to pay them. In order to be eligible for the fringe benefit of partial employer financing of such insurance, an individual must be employed in an enterprise or agency that has such coverage, or at least be a family member of such an individual. The proportion of the total population in developing countries that is covered by either social insurance or private health insurance in most cases does not exceed or even reach 20 percent. Expansion of either type of insurance is very much dependent on the ability to pay for it, which in turn depends in most cases on being employed in enterprises that participate in financing such coverage. Nevertheless, the potential feasibility of expanding the use of non-profit group health insurance associations by small employers and by communities is being explored in several developing countries (see below, IV, B.).

3. Charitable contributions

In many developing countries, charitable contributions constitute important sources of support for health care. Such contributions can be in the form of financial support, or they may largely consist of in-kind donations of personal services, physical facilities, equipment, and supplies. Major sources of charitable contributions are wealthy families and business enterprises, as well as religious organizations. Charitable contributions are not necessarily unselfish in their intent, and one must therefore consider the possibility of hidden costs to the individual or society.

If wealthy families and business enterprises make charitable contributions, they may be able under the tax laws of the country to deduct them

in part or entirely from their income, property or other taxes. This reduces the amount of total tax revenue collected by national, state or local governments. However, since health care typically receives only a small proportion of total tax revenue allocations, the contribution that charity can make to health care may be substantially greater than the loss in tax revenue that it represents. Charitable contributions have other liabilities: the donors may have priorities that do not coincide with the most pressing health needs of the population, and they may prefer to provide physical facilities and equipment as visible evidence of their charity and expect other sources to provide the operating budgets necessary to run them.

The motives of religious organizations in making charitable contributions are likely to be less suspect. In many developing countries, religious organizations have been the first to introduce modern medicine. They may set standards of excellence and dedication to service, however, which public health services may find it difficult to emulate. In particular, it might be very costly to maintain these standards in the long run, even by the original sponsors themselves. In a number of African countries where foreign missionaries were pioneers in introducing modern health care, their facilities now increasingly depend on local staff and domestic financing, neither of which matches the standards originally set by missionaries.

The largest charitable contributions often come from foreign bilateral or multilateral organizations in the form of grant aid (as distinct from loan aid). A number of such organizations, such as CARE and UNICEF, have well-established reputations of benevolence and have made major contributions to the development of health care programs in developing countries. Grant aid has been important in cases of national disasters by helping to reduce the most pressing health problems, and it has in a number of countries contributed through technical assistance and other in-kind contributions to the development of domestic health care services. However, such policies have also been accused of creating a dependency on foreign health care technology and materials which countries may find it technically inappropriate or too expensive to continue using once such aid dries up.

4. *Direct household expenditures*

Although the ultimate source of most expenditures for health care and other social services is household income (earnings of workers, profits from capital, and rents from land), direct household expenditures

for health care represent a separate category of health care financing. It must be differentiated from indirect expenditures, such as taxes, wage deductions for social insurance, or private health insurance premiums, considered above. This category includes all payments the consumer of health care makes directly to the provider as a fee for services rendered, or as the price of a product purchased.

Direct household expenditures on health are strongly influenced by the provisions of insurance coverage. Even when they have such coverage, households usually are required to pay directly for part of the total cost of health services, including medicines. Depending on the extent of coverage, households may have to pay the total cost of some of the health services and medicines they need. Group insurance premiums usually are essentially involuntary payments, and the direct payments required to gain the benefit of health services covered by insurance may be substantial. If households then also directly purchase health services and materials on a discretionary basis, their total health expenditures are likely to be relatively high. Indeed, the combined total of indirect and direct health expenditures of a household with insurance coverage may well be higher than the amount it would be prepared to spend if it had to pay directly for the total cost of the same quantity of services. Further increases in direct household expenditures on health may thus be difficult to justify.

Households without insurance coverage usually have much lower incomes than those that are insured. Their health needs perhaps are met to some extent by tax or charity-supported health services, some of which also require payment of nominal fees for services and medicines. In addition to—or instead of—using public or charitable health services, households at even the lowest income levels typically spend a proportion of their incomes for health care, often for traditional health services, when the need is serious. In cases of serious need, such expenditures may be a very large proportion of disposable incomes and displace expenditures for other basic necessities of life. Although it is important to avoid the unnecessary use of heavily subsidized public or charitable health services, low-income households generally cannot afford to spend much more on health than they already do. It is also unlikely that they could afford to pay premiums for private health insurance, unless they are subsidized or the cost of health care is maintained at a low level. Thus, the principal means of making health services financially accessible to low-income households is through publicly supported health services, or by including them under social insurance which in turn would probably require substantial subsidies from tax revenues.

5. *Communal self-help*

Given the shortage of financial support from the principal sources described above, particularly in low-income urban and rural areas of developing countries, communal self-help is yet another source of health care support. The Chinese example of providing low-cost medical care through para-medical personnel recruited within the community has helped to stimulate similar experiments in other countries. Training local residents in health promotion and first aid skills is one type of communal self-help. In a number of countries, traditional practitioners are being trained in modern health care and in some areas traditional medicine is being promoted as well. Another type of self-help is in the form of community labor for construction and maintenance of local health facilities, including clinics as well as water, sewage and other environmental sanitation projects. Local help can also be used in specific disease eradication campaigns, and all households in a community can be taught and encouraged to practice hygienic and nutritious food preparation. All members of a community, in a sense, represent potential sources of support for local self-help efforts broadly classifiable as health care.

While communal self-help can be a substantial source of health care support, health sector authorities in developing countries usually regard it as complementary to other sources of support rather than as a substitute. Self-help efforts often are at least partially supported with public revenues or charitable contributions, including international aid. They need to be coordinated with regional and national health care systems and conform to certain standards in design and quality. Communal self-help also sometimes encourages increased health care support from sources outside the health sector such as from educational, agricultural or public works authorities.

Non-governmental organizations, including charitable sources of support, might take on increasingly important roles in supporting health care activities at the community level. Their contributions might not in any one case be large enough to have a general impact; rather, such sources might be called upon to finance specific projects, or to benefit specific population segments or particular geographical regions. Non-governmental organizations might be encouraged to branch out and generate additional support through fund raising efforts at the community level.

Local communities might also be encouraged and empowered to impose taxes, fees, and fines on specific activities. If a public works project increases the value of surrounding properties, they might be assessed a valorization tax. User taxes or fees might be levied on the beneficiaries of environmental sanitation projects, including those that

might have been constructed with communal self-help. Charitable contributions of land and buildings might be encouraged through tax write-offs, with such donations either being of direct use for health care purposes, or with the income from such assets being channeled into health care support.

Undoubtedly, there are other methods of raising additional support for health care at all levels. There is a danger, however, in the excessive diversification of sources of support. Duplication of efforts may occur, and the use of funds may not be sufficiently flexible to allow health care administrators to allocate them efficiently and equitably. The major sources of organized health care support will necessarily remain general tax revenues and social insurance. In some countries, private health insurance may become increasingly important, particularly where there is no social insurance system. The search for additional sources of funding should not be allowed to obscure the importance of increasing levels of support from these principal sources as rapidly as possible. Moreover, any source of support should be subjected to the test of criteria outlined in the following chapter.

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III

APPRAISAL OF HEALTH CARE FINANCING

A review of health financing patterns throughout the world shows that the proportion of national income a country spends on health care bears no clear relationship to the nature and accessibility of health care available to its population. Only one general tendency can be discerned, namely that at relatively low levels of economic development, socialized and centrally planned economies are more likely than market-oriented economies to provide universal health care coverage. Only very few developing countries, however, are heavily socialized or centrally planned. Among the large majority of developing countries that have predominantly market-oriented economies, there are great divergencies in the proportion of national income spent on health care and in how health care is financed.

If those who are concerned with promoting the expansion and improvement of health care in developing countries are to formulate justifiable policy goals, they must have some basis for determining how much a country should spend on health care—given its resource limitations—and what means of financing are most likely to be appropriate in channelling financial support into the health sector. Accordingly, this chapter will examine several analytical models that one might use to determine what level of support for health care is justifiable, and it will outline a number of criteria by which to evaluate the appropriateness of the various sources of financial support that might be tapped in order to generate this level of support.

A. Analytical Models of Health Care Financing

An apparently simple but also easily misleading analytical model involves the international comparison of the proportions of national income and of government revenues that countries allocate to their health sectors. Two models that are conceptually more respectable but difficult to apply in practice are cost-benefit analysis and cost-effectiveness analysis. Two other models that avoid the impracticality

of the two just mentioned, but that in turn have certain analytical limitations, are the use of consumer demand as a basis for allocating resources, and the determination of minimal need for health care as a basis for resources allocation. These five models will now be briefly reviewed.

1. Levels of resources allocation

Foreign aid agencies, in particular, tend to view percentages of Gross National Product (the more frequently cited aggregate index, but for practical purposes virtually the same as national income) and of government revenues allocated to the health sector as a measure of what might be called a country's 'health effort'. Ministries of health of developing countries may also find appeal in international comparisons of such percentages—or of per capita health expenditures—as a basis for justifying greater allocations of tax revenues, deficit financing and foreign aid. However, any international comparisons of these indices of health effort should be regarded with scepticism, and they should be conducted and used only with great caution.

The pioneering research on how much countries and governments allocate to health care was done over a decade ago by Brian Abel-Smith under World Health Organization sponsorship. (1) During the current decade, the World Bank and the U.S. Agency for International Development have conducted a number of country health sector studies, and have in some of these reported indices of health effort in some greater detail than Abel-Smith was able to obtain. (65, 66, 76, 77) These and other studies will be reviewed below, in Chapter IV. None of these studies specifically recommends or even concludes that a country should increase its health effort on the basis of an international comparison. The implication of citing such data, however, is that countries indeed should use such international comparisons as a measure of their own health efforts.

What is wrong with such comparisons? To begin with, they necessarily have to be made in terms of a common monetary unit, usually the U.S. dollar. This would be a valid basis for comparison only if all exchange rates were equilibrium exchange rates, i.e. a true comparison of the respective purchasing power of two currencies. Most developing countries, however, have overvalued exchange rates but with different degrees of overvaluation. An international comparison of domestic expenditures would have to correct for this bias and that is extremely difficult to do. No international comparison of health expenditures has attempted to make such a correction.

A second bias inherent in such international comparisons of health

effort is that no two countries are likely to have identical relative prices of goods and services within the health sector, nor are they likely to value health sector goods and services identically in relationship to other goods and services. Differences in the relative value of goods and services produced by the health sector and by other sectors would mean that apparently similar levels of expenditures in two countries would fail to reflect different compositions and quantities of goods and services produced. Different compositions and quantities of output, in turn, would presumably have quite a different impact on health status. Moreover, the level of resources allocation says nothing about the distribution of resources among different population segments.

Yet another reason why levels of support are difficult to compare internationally is that the various sources of health care financing probably differ in relative importance among countries. Different sources of support, in turn, preferentially benefit different segments of society. The types and quantities of health services financed by different sources, and their distribution of funds among population segments, therefore are likely to be different at identical levels of aggregate health care support. Finally, in order to be able to compare health effort internationally, countries being compared must be similar in terms of their levels of development and other characteristics, such as population size and environmental conditions, that might affect both health status and conditions that affect health care delivery. Countries with different health problems have different health care requirements and thus need different levels of financial support, and they also would probably select different sources of financing in order to achieve their objectives.

2. Costs and benefits of health care

A rational approach, in economic terms, to determining the proportion of national income that should be allocated to health care would compare the costs incurred and the benefits obtained with the cost and benefits of alternate uses of the same resources in other sectors of the economy. (9, 42, 52, 53) Economists refer to the foregone benefits that might be derived from an alternate use of resources as the 'opportunity cost' of a decision to allocate those resources for a specific purpose. The objective of rational resources allocation is to reduce opportunity costs, which is the same as saying that the maximum possible benefits should be obtained from the allocation of all available resources.

In allocating financial resources, the use of a cost-benefit approach to decision-making presumes that all direct and indirect costs can be clearly identified, and that all benefits can be expressed in monetary

units of account. In practice, a complete and unambiguous accounting of the potential costs and benefits of all alternate uses of available resources poses insurmountable problems. Many health care benefits cannot be expressed in monetary terms while there is relatively little question as to the cost of health care. This may in part explain a frequently encountered bias against the increase of health care expenditures. Given the uncertainty as to the benefits, both in monetary terms and in the extent to which health improvements can indeed be ascribed to health care expenditures, it is typically not a result of rigorously applied economic reasoning when developing countries do decide to allocate increasing proportions of their national incomes or government revenues to their health sectors. Rather, such a decision is based either on humane considerations or it is a result of political pressure exerted by strong interest groups, such as medical associations.

The impracticality of using cost-benefit analysis as the basis for resources allocation among economic sectors does not necessarily extend to decision-making about allocation alternatives within the health sector. At this level, cost-benefit analysis may be useful in deciding among alternative uses of available resources. (67). Different approaches may be considered. One is to compare the costs of health care with increased economic output in specific settings. The eradication of certain disease vectors can increase the productivity of farming, tourism and other economic activities in affected geographical areas. Health care for employed workers can increase their productivity, particularly if it helps reduce absenteeism. Many employers who directly provide health care for their workers also use it to screen applicants and accept only relatively healthy workers for employment. Clearly, a cost-benefit approach is being applied in such cases.

Another approach to cost-benefit analysis is to compare the costs of certain preventive health care programs with reductions in the need for expenditures on curative care. Accident prevention campaigns, mass inoculations, nutrition programs, water and sewage treatment are examples in which expenditures can be justified by using this approach. The importance of using these types of specific cost-benefit analyses is that they can help to justify and increase support from sources that might not otherwise contribute to the financing of health care. They may also help in deciding among alternate activities to be financed with a given level of support.

3. Costs and effectiveness of health care

The problem of calculating benefits in monetary terms is avoided in a cost-effectiveness approach to analyzing health care expenditures.

Effectiveness can be measured either in terms of health care improvements, as in a health planning methodology developed for Latin America, (49) or it can be measured in terms of functional health care delivery, such as determining which means of providing health care may be more effective in reaching target groups than others. Holding costs constant, for example, one can through hypothetical modelling or actual experimentation attempt to identify ways and means of expanding the coverage of health care delivery. For the same total cost, for example, a larger number of para-medics might be employed, replacing a smaller number of medical doctors. Or, holding effectiveness constant, one can try to find ways of reducing costs of health care delivery, for example, by delegating health care activities to the lowest feasible level. Ways in which effectiveness per unit of cost can be increased usually involve changing the combination of inputs in the delivery of health care or offering incentives so as to improve performance, as these examples illustrate.

The concept of effectiveness, however, has its limitations in the case of health financing analysis. It is almost impossible analytically to separate the impact that health care may have on health status from the impact of other goods and services, such as nutrition, housing, education and 'life style'. The last mentioned includes such habits as smoking, alcohol consumption, personal hygiene, exercise and others that undoubtedly influence a population's health status. All of these possible determinants of health status can be affected by changes in resources allocation. The effect that health care in general may have on health status, apart from other determinants, is therefore virtually impossible to calculate precisely. Reports that associate national reductions in mortality and morbidity with health sector expenditures therefore are of questionable credibility. More credible are the results of well-controlled studies that analyze the relationship between specific health care interventions and directly attributable changes in health status or in the performance of the health care system with respect to specific delivery targets or objectives. Thus, the use of models that try to relate effects to costs, like their counterparts in cost-benefit analysis, are best limited to the micro-economic level. At this level, such models can be very useful in helping to determine if additional financing for a specific health care activity is justifiable or if and how the use of available resources might be made more efficient.

4. Consumer demand for health care

The literature on health care financing pays little attention to the demand for health care by individual households, probably because

they are generally believed not to have much independent decision-making power over how much to spend on health care and what to purchase. The providers of health care are thought to influence if not actually to determine the level and allocation of household incomes for health care. Since a large proportion of total expenditures are made through public sector channels or insurance programs, one might indeed have reason to believe that individuals and households do not have much influence over the general level and allocation of health care expenditures. Moreover, it has already been noted (above Chapter II, B. 4.) that even direct household expenditures are largely determined by requirements of paying part of the cost of publicly or insurance-financed health care. Health care undoubtedly is different from most other types of expenditures in market economies in which consumer preferences are assumed to determine the level and composition of output of goods and services. Yet, one should not omit consumer demand analysis from an appraisal of health sector financing. Households do, in fact, make some largely independent decisions about certain types of health care expenditures.

In developing countries, some fragmentary evidence from household surveys and analyses of drug sales suggests that there is indeed some expression of consumer preference for the type of health care sought. Self-administered drugs may constitute a far larger proportion of total health sector expenditures than has been realized in the past. This may also mean that the total of health care expenditures in many countries is being underestimated. The small percentage of households having any kind of insurance coverage suggests that the decision to obtain health care may remain largely with the household. If a household requires medical care, it has the choice whether or not to consult a health practitioner, and what type of practitioner to consult (e.g., traditional or modern, public or private). At low levels of household income, private demand for health care probably is more elastic with regard to price than at higher levels of income because low-income households may have to bear the total cost themselves, whereas at higher-income levels the cost is in part shared through insurance. Since a health care expenditure is likely to be a larger percentage of household income at low-income levels, this decision is more likely to be influenced by the cost of that service. Thus, consumer demand for health care may retain some degree of autonomy which underscores the importance of direct household expenditures as a source of health care financing. These considerations suggest that yet another useful analytical model is one that analyzes the determinants of demand for health care, especially at low income levels.

In addition to households, business enterprises are a major source of consumer demand for health care, and therefore a second major source of consumer financing. Business management probably has greater influence than do households over the level and allocation of health care financing they provide. Employers may be covered by the social insurance system, decide to purchase private group health insurance, or directly pay for health care for their workers. They would choose to do so either because they consider health care to be a profitable investment in maintaining the productive capacity of their work force, or because they accede to a demand by workers for health care coverage as a part of their total remuneration. In either case, the role of business establishments in creating demand for health care is an important one. As the modern employment segment of a developing country's labor force expands, either social insurance or private group insurance is likely to become the most rapidly growing source of health care financing in market-oriented countries. Consumer demand analysis, including both households and businesses, should therefore be included as one of several important analytical approaches to the appraisal of health care financing.

5. Minimal need for health care

Demand is not the same as need for medical care. Only demand, by definition, represents purchasing power. A person in need of health care who does not have the money to pay for it, or who does not have access to health care supported from other sources, will not receive care. In most developing countries, large proportions of the population are in need of health care but financial resources are insufficient to provide it for them. It is possible to estimate what additional funding would be required to provide all of a country's population with at least minimally adequate health care and thus to translate need into demand. (81) An estimate in monetary terms of the need for health care that is currently not being met can be a powerful argument for increasing the level of health care financing. It could also help to bring about a reallocation of resources from certain segments of the population that receive more health care than they really need, to those that have less than they need, or to use available resources more efficiently so as to serve more people.

A minimal need estimate of health care requirements should include both curative and preventive services. A country's health experts, possibly with international technical assistance, must set standards of minimal health care that are appropriate for dealing with prevalent disease

vectors and other major causes of illness and death. Depending on population distribution and concentration, estimates of the number of people that can be served by basic health care units would be a basis for calculating personnel and material requirements. Additional services, such as nationally conducted (vertical) health campaigns, sanitation, and other preventive health care measures that cannot be operated through the basic health care system must be considered. Referral services, including regional hospitals staffed and equipped for surgery and intensive care, may be deemed essential. Ancillary services, such as communications, transportation, and administration would have to be included.

All of these service requirements can be translated into cost estimates, properly divided into investment and operating costs, and projected over some period of implementation. Total cost estimates are likely to exceed the ability of the currently used sources to increase their financial support. The minimal need analysis could be used, however, as a means for mobilizing new sources of support, including foreign aid, local self-help, and other sources that may not yet be fully exploited. As indicated above, such estimates could also help to illuminate inequities in the current distribution of financial support, draw attention to the need for using more para-medical health practitioners, and in other ways help to cut unit costs in order to expand health care coverage.

B. Evaluation Criteria for Financing Methods

Financing sources cannot be assumed to be neutral with respect to the uses of funds, as already noted above. They differ in important characteristics, such as the level of funding they can provide, which was the principal basis of comparison in Chapter II, above. At least five other categories of criteria and effects can be identified that should be considered in evaluating sources of health care financing. These include efficiency and equity criteria, as well as displacement, use, and production effects, all of which will now be examined in some detail.

1. Efficiency

Probably the most important objective criterion for evaluating a source of health care financing is its efficiency. Several characteristics of a source are relevant in evaluating its efficiency. One of these is the difference between gross and net yield. Gross yield refers to total revenue collection, discussed in Chapter II. Net yield is the proportion of the total that is actually made available for purposes of health care delivery.

The cost of administering a source of health care financing, unless it is a health care institution itself, should not be included in the amount available for health care.

Sources with very low net yields, for example, include lotteries and betting operations. Their gross yields may be substantial, but their net yields rarely are more than 20 percent of the gross yields. Insurance companies, especially those operating for profit, also tend to have relatively low net yields because of their high costs of administration, which include both the costs of selling the insurance and of administering claims. Only the latter of these two functions represents a health care activity. Social insurance programs and non-profit group insurance companies are likely to have higher net yields than profit-oriented private insurance companies selling individual coverage. Tax revenues and domestic deficit financing should have relatively high net yields, but that depends on the overhead of governmental bureaucracy that they need to support before the net yield is allocated to operating programs, such as health care. Relatively high net yields are provided by foreign aid, especially grant aid, by fees for services and other direct medical expenditures made by households, and by community self-help contributions. Nearly all of the revenue from these sources, once allocated for health care, is actually available for this purpose. Another measure of efficiency is the relationship between the hypothetical and actual gross yield of a source. Tax evasion and corruption on the collection side may keep the gross yield of general and sales taxes from what it should be at established tax rates. Income, sales and property taxes are more difficult to administer because of such problems than foreign trade and business taxes.

More important even than net yield may be the reliability or stability of a source in providing health care financing. Private health insurance and social insurance probably are the most reliable sources because they usually are not subject to political allocation processes. This may outweigh relatively high administrative costs that limit their net yields. Tax revenues, although they may be the single most important source, are a less stable source. They vary with cyclical changes in economic conditions, and the political process of resources allocation may cause unpredictable delays and changes in the disbursement of funds. Nevertheless, it may be more efficient to receive a large allocation from one principal source, such as tax revenue, than to have to contend with several smaller sources, some of which may be stable while others may be unpredictable in providing funds.

Finally, freedom and flexibility in the management of funds from a particular source also affect its efficiency. Excessively stringent reporting

requirements, for example, increase administrative costs of health care delivery. Restrictions on the reallocation of funds among expenditure categories can cause inefficiencies in the delivery of services. Public sector sources, including sources of foreign aid, typically are less flexible than insurance and other private sector sources. Public support, however, usually makes health care more generally available than does privately supported health care, which is both an efficiency and an equity consideration.

2. *Equity*

The most important subjective, or value-based, criterion is the equity of health care financing. The basic questions are, "Who bears the burden of financing?" and, "Who are the beneficiaries of health care?"

One interpretation of equity is that an individual or household requiring health care should bear the full burden of the cost involved. Although this is not a view that is widely held, many recipients of health care in developing countries in fact do bear the full cost of the goods and services they receive. This is true when private practitioners are consulted, unless they charge for their services in accordance with a patient's ability to pay, and it is true when self-administered medicines are purchased.

Most observers would agree that it is inequitable for an individual or household to pay the full cost of health care. This view can be supported by at least two different rationales of equity. According to the first rationale, since the risk of illness is unequally and—for any one individual or household—unpredictably distributed in a population, the risk should be equalized and everyone should bear a proportional share of the total cost of health care. Another rationale holds that the burden of financial support should be distributed in accordance with ability to pay, which in turn depends on income distribution and on the distribution of the burden of other financial obligations.

The interpretation of equity based on risk distribution is known as 'horizontal equity'. This concept also has another application. The distribution of risk of illness in a population is not identical with the propensity of individuals to seek health care. Even if they make equal contributions, some people are more likely than others to have ready access to health care, or to seek more health care, even if their need for health care is identical. Different financing methods may make it relatively easier for some and more difficult for other individuals to take advantage of the coverage provided. Thus, even with equal risk of illness and equal payment contribution, different individuals may still

not have equal access to health care. If different sources of financing have different provisions for allowing access, they cannot be regarded as being equitable. In principle, however, horizontal equity is achieved through insurance schemes that equalize risk.

The interpretation of equity based on ability to pay is known as 'vertical equity'. This notion suggests that individuals or households should contribute to health care financing in accordance with their ability to pay. 'Progressivity', however, as this concept is called, contradicts the idea that incomes represent contributions to total production which in turn establish claims of proportional enjoyment of total income. A substantial redistribution of income is often said to reduce incentives to produce and thus to lower total output and income below potential capacity.

Centrally planned economies generally subscribe to the notion that everyone should contribute in accordance with his ability and receive according to his need. Market economies, in principle, adhere to the notion that individual incomes should reflect personal ability and effort. Nevertheless, they do have progressive forms of taxation that seem to reflect some degree of adherence to the ability to pay and need criteria. At low levels of development, however, the largest source of tax revenue—foreign trade—tends to be regressive. So are sales taxes. Only business and income taxes are clearly progressive and these usually are not implemented effectively until later stages of economic development.

Even progressive financial contributions, however, do not guarantee equal access to the services being supported. It is quite likely that those who make proportionately higher contributions also receive large shares of public goods and services. Thus, in evaluating the equity of a source of financing, one must determine not only who pays but also who benefits and how much.

3. Displacement effects

A new source of health care financing, or a recently expanded source, may displace funding from other sources. Its apparent contribution may thus be more than its real or net addition to total resources available. Displacement is not necessarily an undesirable consequence if the new or expanded source of funding is more efficient or more equitable than the one it partially or entirely displaces. Countries that decide to socialize health care by displacing most current sources with a commitment to increase substantially the proportion or general tax revenue allocated to the health sector, would do so based on both efficiency and equity considerations.

Developing countries that rely on a variety of sources to finance their health sector activities, and that are seeking to tap new sources, must be concerned about the displacement effects of doing so. Contracting for foreign aid, in either loan or grant form, may have undesirable displacement effects. Foreign aid loans, which typically must be repaid with taxes levied on future foreign exchange earnings, relieve a government from having to allocate current foreign exchange receipts. This is a displacement effect. Similarly, deficit financing relieves a government of the need to finance all health care expenditures from current tax revenue, which is also a displacement effect. The usual justification for contracting foreign aid or engaging in domestic deficit financing, of course, is that currently available resources would not suffice to undertake the programs or projects to be financed from these debt-creating sources. A country that places a high priority on health care development, however, should always consider the alternative of increasing its tax effort. This may be difficult to do for reasons of political opposition or bureaucratic intransigence, but the alternative of going into debt is to burden future tax revenues with interest payments and repayment of the debts.

Another type of displacement effect of foreign aid or deficit financing is that a program or project thus being supported also requires the allocation of current resources as counterpart funding. This stipulation is common practice in the case of foreign aid. Its intent is to commit the government or particular health care program to the implementation and continuation of the activities being supported. If the government or health sector agency reallocates funds from other activities, however, in order to meet the counterpart funding requirement, this represents a displacement effect. If this reallocation of funds reflects an agreed-upon change in priorities, the displacement effect may be a positive one. The displacement effect could also be negative, however, if the result of the reallocation of funds is to reduce the level of support for health care or other social services for needy segments of the population.

Displacement effects may not be as obvious with other sources of financing. The transition from direct payments for health care by households to indirect payments through insurance schemes probably increases the total of health care expenditures. The sharing of risks among the covered population is horizontally equitable, as pointed out above. Nevertheless, insurance may in large part displace rather than add to the total of resources being allocated to health care while at the same time increasing the demand for health care among the covered population.

In the search for new sources of funding, such as charity, local taxes on incomes, sales, or property, user fees and community self-help con-

tributions, the possibility of displacement of other sources of funding also needs to be considered. Charitable contributions and state or locally imposed taxes may be deductible from other tax obligations and thus reduce general tax revenue. Or a national government may reduce the allocation of general tax revenue when state or local sources of tax revenue are newly tapped. Alternatively, increases in federal allocations of general tax revenue to state and local health care programs may simply displace the allocation of local tax revenues, charitable contributions and community self-help.

Displacement effects can be either positive or negative in their impact on levels of support, and on the efficiency and equity and of health care financing. It may not be easy to identify them clearly or accurately, but the likelihood that they occur whenever significant changes are made in the level and composition of health care financing suggests that they must be seriously considered. Otherwise, the real increase of a new or increased source of support may be far less than the apparent increase.

4. *Impact on health care utilization*

Different sources of health care financing may have quite different effects on the utilization of services they support. Some methods of payment offer greater incentives to health care practitioners than others. Also, certain methods are more likely than others to stimulate or restrain the utilization of health services by the population in general, or by certain population segments in particular. Various sources of financing may also have different effects on the cost of health care, and thus affect utilization indirectly.

A criticism often aimed at both public sector support and social insurance is that in countries where these sources administer health care programs directly, incentives for health care practitioners are thereby reduced. If they employ practitioners who are paid salaries, rather than being paid for specific services performed, these practitioners have no monetary incentive to treat more than a standard quota of patients or produce in accordance with specified output targets. Unless strong professional ethics and effective organizational discipline prevail or other than monetary incentives are used, health care under directly administered programs may decline in both productivity and quality. This danger is heightened if utilization of health services is simultaneously increased when private costs are lowered.

Any source of financing that relieves a household of part of the cost of health care would normally lead to increased demand for health care.

This may be a desirable consequence, but it can also lead to excessive utilization. If that occurs, available services may be overburdened, or some segment of the population may benefit more than another. Even if services are subsidized, they may still be more frequently utilized by persons living near them than by those who must travel long distances, or by those with more free time than others for whom the opportunity cost of seeking medical care may be substantial in terms of foregone output and earnings.

An indirect effect on utilization of health services is the possible inflationary impact of a source of financing. Especially if a sudden increase in the level of financing occurs, such as a foreign aid disbursement, the supply response of drawing additional personnel and materials into the health sector may be too slow to meet the new demand. In a market economy, the result would be to increase the prices of goods and services in the health sector. A larger allocation of funds would thus provide a less than proportional increase in health care in real terms. It may also happen in a market economy that two sources of financing, supporting different health care systems, compete with each other for the available supply of health care practitioners and medical supplies and thus bid up wages and prices. The result in the short run would be to reduce supply in real terms, although in the longer run rising prices might serve as an incentive to increase supply, unless the supply of health care is controlled by oligopolistic practices among its providers.

5. Impact on health care provision

Some sources of health care financing are biased explicitly with regard to the types of health care expenditures they favor. Foreign aid, for example, is limited largely to financing the import component of health care expenditures, with particular preference usually given to technical assistance, modern equipment and medical supplies and nutrition supplements. Foreign aid does not usually include support for operating costs of health care programs. The use of domestic deficit financing also is usually limited to investment expenditures, such as physical facilities and equipment.

A substantial proportion of publicly financed health care in some developing countries may be allocated for preventive rather than curative health care. Social insurance, private health insurance, and household expenditures, on the other hand, usually are made primarily for curative services. Health services financed directly by employers, charitable contributions, and community self-help efforts usually are very explicit and limiting in their preferences for specific types of health services.

Besides such specified purposes, most sources of health care financing are likely to have different impacts on production technology and the employment of health practitioners. Social insurance and private health insurance schemes have shown a strong tendency in developing countries to support modern, hospital-centered health care. They primarily employ medical doctors as the principal providers of health services and usually allow lower level practitioners to work only under direct supervision of medical doctors. Public health authorities in many developing countries have been more likely to experiment with the use of para-medical practitioners, particularly in outlying rural areas. In fact, the expansion of health services in the rural areas, requiring quite different delivery techniques from those predominant in urban areas, has been pursued largely by public health agencies with support from general tax revenues and foreign aid. In some countries, rural health care delivery may also have been pioneered by religious organizations or other charitably supported agencies.

Although the health sector is generally considered to be highly labor-intensive, the dire need for expanded employment opportunities in developing countries is among the large majority of people in the labor force lacking the educational foundation for advanced modern medical training. Thus, the health sector can serve as a major source of employment opportunities only if demand is created for para-medical health care practitioners and rural health promoters. In many advanced market-oriented economies, the health sector has been financed in large part by sources, particularly insurance schemes, that oppose the employment of increasing proportions of low-level practitioners working largely without professional medical supervision. In many developing countries, these same sources are increasing in the proportion of total support that they provide, thus inhibiting the expansion of employment in the health sector.

Neither the analytical models nor the criteria of evaluation discussed in this chapter are likely to yield accurate and unambiguous results. Indeed, the use of several of these tools of analysis may lead to contradictory results and policy recommendations. That does not diminish their usefulness. The fact is that many different and often contradictory objectives are being pursued in the financing of health care in developing countries. Identifying these contradictions, reducing inefficiencies, increasing the equitable allocation of resources, and ultimately increasing the overall level of health care support require the use of analytical models and appropriate criteria of evaluation. Otherwise, decision-making about the allocation of resources for the expansion and improvement of health care will remain limited to ingrained biases and guesswork.

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IV

STUDIES OF HEALTH CARE FINANCING

The first three chapters have provided general background for a critical understanding of the determinants of health care expenditures, the sources which finance these expenditures, and the models and criteria that might be used in appraising these sources. This fourth chapter will summarize some of the evidence on sources of financing that has been gathered in developing countries. In Section A, overall and systemic studies that focus on certain basic issues relating to the major sources of funding will be discussed. Section B will summarize information on health care financing in a number of recent country case studies. These case studies represent the state of current research on health care financing in developing countries; they also show the great diversity in the relative importance of various sources of funding, leading one to conclude that there is no more of a prevailing pattern emerging in these countries than there is in advanced market or centrally planned economies.

A. Overall and Systemic Studies

The following brief review of studies that have analyzed aggregate data on sources of funding should be read in the light of reservations about the usefulness of such data, expressed above in Chapter III, Section A, 1. Next, studies of major issues arising in the use of national health insurance and of social insurance toward the objective of providing universal access to health care will be reviewed, again with particular reference to developing countries. This review is then contrasted with the approaches that China uses to support its health care system. Section A will conclude with a very preliminary discussion of the emerging issue of primary health care financing.

1. *Studies of aggregate support levels*

Most studies of health sector resources in developing countries are based on inventories of human and physical resources, rather than on

financial flows. They usually divide numbers of health practitioners and hospital beds by the population totals and compare these ratios between urban and rural areas and among countries. Such ratios are not without their usefulness. However, when limited financial support forces greater reliance on low-level health care practitioners and expanded ambulatory services, they are not necessarily appropriate standards of comparison. The study of financial support for health care in developing countries, which is potentially a more useful approach to the study of sectoral resources allocation, is still in its infancy. The only major study of note is the work by Abel-Smith, published over a decade ago. (1) This study, which used data largely for fiscal year 1961/62, took about 10 years to carry out (1958-67). It required the cooperation of many officials in participating countries; it also involved considerable expense, and it could probably not have been carried out without the sponsorship of the World Health Organization.

The study included 33 countries, 16 of them clearly in the category of developing countries. Problems of conceptualization and data collection that Abel-Smith encountered, particularly in the developing countries, remain much the same, as participants in the more recent country studies, reviewed below in Section B, can testify. Many of Abel-Smith's findings, and more importantly, most of his reservations concerning the validity and meaning of those findings, remain as pertinent now as they were in 1967. A brief summary of his major points should thus be useful in the present context.

There was and still is no universally accepted accounting framework for health care expenditures. Nor is there general agreement on the boundaries of the health sector. Abel-Smith excluded nutritional services from his study, which nowadays would probably be included. He found that environmental services posed many problems of definition and of identification in national accounts and sectoral budgets, and that problem remains. Similar problems were encountered with drugs and medical supplies. Another difficult question remains the identification of health care expenditures by the armed forces and other ministries likely to have health care expenditures of some importance. Almost totally intractable then—as it is now—was the accounting for depreciation costs, imputed rents on facilities, and interest payments on debts. Most developing countries still are not able to provide good estimates of direct household expenditures for health care. Abel-Smith also found that most of them did not have data on the incomes of private practitioners and on the construction and operating costs of private health care facilities. Direct financial support provided by employers and charitable sources involved unknown but often substantial amounts in most coun-

tries. Developing countries generally were able to provide only aggregate data on health ministry and social insurance expenditures for health care. Frequently, even these aggregates had to be gathered specifically for the study. With few exceptions, foreign aid and private health insurance were negligible categories in the early sixties.

Abel-Smith laid to rest an apparently favored generalization at the time, namely that countries tended to spend about four percent of their national incomes on health care, regardless of level of development. Instead, he found that among low-income countries, three percent of national income spent on health care was an upper limit. A number of developing countries spent about two-thirds of total health sector resources through public channels, including social insurance, although in other countries this varied widely. He found moderate support for the view that the proportion of national income allocated to health varies positively with per capita income. A number of countries with relatively low levels of income, however, were spending proportionately more of their resources on health care than countries with much higher standards of living.

The proportion of government revenue allocated to health care in developing countries varied between eight and 16 percent. More detailed analysis seemed to reveal, however, that this proportion was lower, the lower a country's general level of income. More recent data, published by the World Bank, suggest that these general magnitudes have not changed. (77) Another interesting insight provided by Abel-Smith was that the share of its budget that a government allocates to the health sector does not appear to depend on its tax ratio. He also found that among high-income countries in his sample, those that relied heavily on government financing spent relatively lower proportions of their total national incomes on health care than did countries that combined several major sources of financial support. This finding holds true if one looks at more recent data for advanced market economies.

Analyses of the British national health service, which accounts for about 85 percent of that country's total health expenditures, indicate that health care has increased only very gradually as a proportion of gross national product. This proportion currently is about six percent. (29, 43) The explanation advanced for this relative stability is the rationing function performed by the system, which is by far the largest employer of health care practitioners and can thus control their wages. In the United States, where health care is financed by a combination of government, insurance, and direct payment sources, health care as a proportion of gross national product has risen from below six percent in the mid-sixties to over eight percent in the mid-seventies. (36)

2. issues in national health insurance

Developing countries contemplating the institution or expansion of insurance schemes would be wise to consider results of studies made of the effects of insurance upon the costs of health care in the United States, as well as in several other nations that use multiple sources of health care financing. By lowering the direct or private cost of health care, expansion of insurance coverage, whether private or social, is likely to increase demand for health care. If supply does not increase correspondingly, this increased demand will drive up the price of health services (see Chapter III, above). Two other frequently mentioned consequences of expanded insurance coverage that affect costs are the increasing use by practitioners of costly equipment and supplies, and the demand by consumers for more comfortable and convenient accouterments that are incidental or irrelevant to the primary function of health care. Some studies also claim that private insurance companies fail to use their economic power as a major source of financing to control oligopolistic pricing practices of professional organizations and of private industry suppliers of health services and products.

Partially in response to the rising cost of health care, the United States Congress is considering a large number of proposals for the introduction of national health insurance. There is an extensive literature on the subject. (15, 17, 36, 46) Without attempting here to summarize this debate, suffice it to identify some of the issues that are relevant to developing countries contemplating similar approaches to the consolidation of health care financing. It is important to realize, for example, that national health insurance does not necessarily imply financing such a system entirely or even largely from general tax revenue as is done in Great Britain. The common concern of national health insurance proposals is not the source of financing, but rather the coverage, standards, and pricing of health care that need to be unified in order to achieve certain basic objectives.

Generally agreed-upon objectives of national health insurance include, a) providing universal protection against unpredictable costs of illness, with particular emphasis on the risk distribution of catastrophic costs; b) increasing the efficiency and reducing the costs (or restraining further increases in the costs) of health care; and c) providing equitable access to health care regardless of ability to pay for it. The last-mentioned objective, most studies agree, requires the public sector to subsidize the medically indigent so as to provide them with equal access to health care. In developing countries, this may include up to 80 percent of the population, which makes these countries different from advanced market economies where public subsidies are required for only a relatively

small proportion of the population. Among developing countries, only very few with strong tax bases are capable of carrying that heavy a financial burden. Most others are not capable of supporting national health insurance out of general tax revenues. This does not mean that they are prevented from actively considering a unified national health care system.

The Federal Republic of Germany is an example of an advanced market economy that has largely achieved universal health care coverage by using multiple but highly coordinated sources of funding. It spends about seven percent of national income for health care, which is less than the comparable proportion in the U.S., but more than in England. In Germany, either payroll deductions or otherwise obligatory health insurance payments provide most of the labor force and their dependents with health care coverage. Tax revenues are used to buy insurance coverage for the aged, the unemployed, students, and others with low incomes who are not otherwise covered by insurance. Only the highest income segment of the population retains the freedom of voluntary insurance payments. Organizations representing the sources of funding and the providers of health care bargain over institutional budgets and practitioner remuneration within limits set by the government. (29)

Most other advanced market economies with unified health care systems similarly rely on multiple sources of support. These countries differ mostly in the extent to which the sources of financing are used to buy health care from private suppliers, or have themselves become the providers of health care. Only in England does the state directly employ most health care practitioners. In most other advanced market economies, general practitioners, at least, have remained autonomous agents. The main difference is that instead of receiving salaries as in England, they are paid on the basis of services performed for which they bill the financing source in accordance with established rates. In this way, an incentive is provided to maintain high productivity. Also, medical doctors are more likely to locate themselves with reference to population concentration.

In contrast to those advanced market economies which have achieved a fairly efficient and reasonably equitable system of national health insurance, the experience of the U.S., and the problems exposed in its current debate on this subject, offer cautionary lessons for developing countries. If a country allows multiple sources of financing to bid up prices of health care, and if it permits the medical profession to exercise oligopolistic control over its fee structure, it will find it very difficult later on to unify its health care system, and to provide universal access

to health care without experiencing inflation in costs that would put the attainment of this objective out of reach. National health insurance can be financed from several different sources, depending on income levels, income distribution and employment conditions. It is necessary, however, to coordinate and exercise effective control over the allocation of funds. Remuneration of health care practitioners at all levels must be high enough to attract candidates for training and employment in this field, but the price inelasticity of demand for their services must be offset by controls over their wages or the fees that they can charge. The use of modern medical technology must be subject to cost constraints, and consumer demand for health care must be regulated so as to assign priorities to those with the greatest need.

For most market-oriented developing countries, reliance on general tax revenue to finance most of their health care needs is unrealistic. Only those with highly favorable natural resource endowments, providing them with an ample source of tax revenue, would be in a position to adopt the British model of health care financing, in which 10 percent of the total government budget is spent on health care. As noted above, this source represents about 85 percent of total expenditures on health care in the country. While many developing countries come close to spending 10 percent of their governmental budgets on health care, their per capita income levels and tax ratios generally are much lower. Thus, even substantial increases in tax ratios and in government allocations to health care would not enable most developing countries to finance nation-wide access to health care largely from public funds. Most developing countries will have to rely on a variety of sources of financing. In many of them, the introduction or expansion of social insurance promises to generate the largest amounts of additional financial support.

3. Issues in social insurance

Social insurance as an approach to health care financing has found world-wide acceptance in all types of economic systems. Most socialized economies as well as a number of centrally planned economies rely on it, as do many market economies. With the exception of Argentina, all Latin American countries have adopted social insurance as a source of health care financing. So have some African and many Asian countries, and indications are that other developing countries will follow suit. In some countries, including England and the Soviet Union, social insurance has eventually been replaced by tax revenue financing. In the large majority of countries, however, it seems likely that both will con-

tinue to be used as the two principal sources of non-private health care financing. (57)

Because social insurance is in most countries financed through employer and worker contributions, the system is usually administered under the auspices of a ministry of labor rather than a ministry of health. Correspondingly, the expansion of such systems is stimulated and coordinated by the International Labor Organization rather than the World Health Organization. Formal policy recommendations concerning social insurance have therefore emanated largely from the ILO, although close cooperation is maintained in this area between the ILO and WHO. A leading expert on social insurance, Milton Roemer, has worked under the auspices of both organizations and his findings represent basic reading for an understanding of the issues involved. A brief resume of some of these issues pertaining to developing countries follows.

In his world-wide analysis of social insurance, Roemer identified the earmarking of funds for designated social purposes (i.e., health care and pensions), derived from a source of greater long-term stability than legislative appropriations, as the major reason for the viability, strength and expansion of social insurance coverage in both advanced and developing countries. (55) He also identified two major patterns of using social insurance funds. The 'indirect pattern' is one in which providers of health services retain their professional independence while entering into service agreements with beneficiaries. Under the 'direct pattern', the social insurance system itself employs the practitioners and provides most of the facilities needed to serve its beneficiaries. Roemer found that the indirect pattern predominates in the advanced market economies, where strong professional associations and autonomous local facilities usually precluded takeover by a national health service (England being the major exception). On the other hand, in the developing countries, where existing facilities are generally poor and private demand for modern health care is not enough to support a large number of independent private practitioners, the direct pattern is likely to prevail. He also pointed out that countries with centrally planned economies are more likely than market-oriented economies to adopt the direct pattern. Roemer concluded that, in general, the direct pattern is less expensive than the indirect pattern, according to available evidence.

Subsequently, Roemer considered whether social insurance is justifiable in developing countries. (54) Because of its minority coverage of the population in those countries, and also because social insurance generally has provided a higher quality of health care for this minority than is available for the majority of the population, critics of social

insurance frequently cite its apparent inequity. Roemer argued in defense of social insurance that, a) it taps a source of funds that would otherwise not be spent on health care; b) it does not compete for tax revenues but rather increases the overall proportion of national income spent on health care, and it may even help to increase tax support for public health care by setting an example of quality; c) it has a high degree of stability; d) it efficiently distributes risk among the covered population; e) it is equitable insofar as it provides workers and their families in urban areas with health care that they would not otherwise be able to afford in the same quantity and quality.

Roemer later substantiated some of his conclusions with an analysis based on Latin American data. (58) He found no evidence to support the allegation that strong social insurance systems are associated with weak public health programs. Instead, he found that strong social insurance systems tend to be associated with strong public health programs and that both are highly correlated with a country's level of income. In a number of other contexts, Roemer has repeatedly stressed his strong belief that social insurance is capable of providing support for the expansion of health care in developing countries, eventually serving most of a country's population as it does in many advanced countries.

This optimistic view of social insurance in developing countries is not universally shared. The ILO itself is particularly concerned over the rising cost of medical care under social insurance. (33) This concern is shared by WHO. The basic problem appears to be that this system of financing health care frequently has no effective control over costs, particularly when the indirect pattern is followed. WHO has maintained that the allocative and the operational efficiency of medical care can be positively influenced by social insurance only when the system also has the power to decide upon and implement changes in resource allocation and use of health care practitioners. (72) WHO has identified the major areas of needed change, including a) reduced reliance on hospital services, b) better cost accounting, c) greater cost-consciousness by health care practitioners, d) control of medical supply costs, especially drugs, e) increased reliance on supervised self-care by patients, and f) selective support of preventive health care. (75) WHO has also frequently gone on record in support of the expanded use of low-level health care practitioners, particularly in the expansion of services into the rural areas that still account for the large majority of inhabitants in most developing countries.

Market-oriented developing countries may find it difficult to exercise the necessary degree of control over costs and resources allocation, as

well as to implement the extensive restructuring of health care systems that may be required to contain rising costs and avoid increasing inequities in health care. Only low-income countries with centrally planned economies—most notably China—have been able to exercise such control and to bring about a major restructuring of health care. Recent analyses of the Chinese example illuminate the necessary financial and organizational arrangements.

4. *Health care support in China*

The implementation of a low-cost rural health services delivery system in China since the mid-sixties has raised the question of its adaptability in other developing countries with different political and economic systems. Much of the attention of outside observers has been focused on the use of so called 'barefoot doctors' who in reality are paramedics with very limited medical training. Of equal interest is the manner in which China is financing its rural health services system.

The most important characteristic of health care financing in China's rural areas, which account for over 80 percent of the country's 800 million people, is the policy of promoting local self-reliance. The lowest health services unit, a health station staffed by one or several barefoot doctors, serves the production brigade, usually a community of between 1,000 and 3,000 people. The health station is expected to be entirely community-supported. The lowest level hospital or general health center operates at the commune level, with a commune consisting of 10 to 20 brigades. The commune facility is also expected to be self-supporting, financed in part directly by the brigades and indirectly from taxes levied on the brigades. Only secondary and tertiary hospitals operating at the county level and in the cities are financed largely by the government from general tax revenue. In the cities, health stations and community hospitals also are expected to be self-supporting. Only nationwide preventive health campaigns, including family planning, are largely subsidized from general tax revenue, although they also utilize community health manpower and facilities. (69)

The Chinese people thus rather directly provide the financial support for all of their primary health care, and this probably represents the largest proportion of total health sector financing; with general tax revenue supporting only a limited number of large hospitals and certain nation-wide health programs. Households spend an estimated two to three percent of their incomes on health care. Adding to this tax-supported services, total expenditure on health care in China probably is between three and four percent of national income. This is somewhat

higher than the proportions of national income that most other low-income developing countries spend on health care. (1, 77) The attainment of universal access to health care in China may in part be explainable by this higher proportional level of resources allocations to the health sector; more important, however, is the significantly lower unit cost of health care which is achieved by stringent cost control and reliance on very elementary health services.

Self-reliance in health care financing in the rural areas is accomplished through a combination of health insurance funds operated at the brigade level and direct payment of fees for services. Not all communes have implemented this approach, and there are great variations in the levels of pre-payment and fees for services among the estimated 70 percent of China's 50,000 communes that have adopted this approach. There apparently is no scaling of premiums and fees in accordance with ability to pay, risk of illness, or family size. Since the incomes of workers and peasants do not vary greatly, vertical equity is not an issue. Some degree of horizontal equity is attained through the referral system by which serious cases of illness are treated at secondary or tertiary hospitals whose services are essentially free to the users.

In the cities, health care is also financed through insurance. Factory workers receive medical services free of charge, with their insurance paid through an assessment of two to three percent of the gross income of their production units. In effect, however, this method of payment is not significantly different from payroll-based contributions under social insurance schemes in market economies. The same comparison holds for government employees in China who also receive free health services. These are a fringe benefit that is part of their total remuneration and thus also not significantly different from other countries. Dependents of government and factory workers are only partially covered by workers' health insurance. (30) Apparently there are no separate health care services for workers or government employees. Community health stations and primary hospitals serve everyone as the source of primary health care.

The low-cost nature of primary health care in China is explained by the extensive reliance on low-level health care practitioners. The lowest level practitioner is a "sanitation worker" who is a member of the production team, the smallest unit of the production hierarchy. The sanitation worker has received only very elementary first aid training, usually from the barefoot doctor at the local health station. In addition to working with the production team, he or she performs preventive and first-aid services without receiving additional remuneration. The

barefoot doctor is a peasant or worker who has received three to six months medical training, usually at the primary hospital of his or her rural commune or urban community. He or she works full time in this capacity, with responsibility for preventive and promotional health services as well as curative care, and is paid the equivalent of rural brigade or urban factory wages. The practice of primary health care relies heavily on the local preparation and use of herbal medicines, with great frugality exercised in the use of modern medicines purchased out of the health insurance funds. Medicines are given to patients free of a separate charge when they use the health service. Primary health care in the urban areas similarly relies on low-level health care practitioners and traditional medicines and curative techniques. This heavy reliance on very low-cost primary health care in China leaves national and county government budgets burdened only with the cost of secondary and tertiary hospital care, high-level medical education, and part of the cost of vertical health campaigns.

5. *Financing primary health care*

'Primary health care' is a concept trying to become a movement as developing countries search for ways and means to provide access to health services in their rural areas where—as in China—most of their population lives. The literature on the subject is replete with references to the Chinese example of using low-level health practitioners, including their recourse to traditional practices and medicines. Almost no attention has been paid, however, to the critical question of how to finance primary health care in rural areas of developing countries.

Primary health care in most developing countries, to the extent that it exists in rural areas, primarily relies on one of two sources of support. It is funded either by general tax revenues allocated by higher levels of government, or it is supported from charitable sources, supplemented usually by small user charges. In many countries the latter are religious organizations which also in most cases directly supply medical doctors and nurses as well as equipment and supplies. A first-hand review of questionnaire returns from 180 low-cost health projects in developing countries, surveyed by the American Public Health Association, would lead one to this conclusion, as would a reading of the *Syncrisis* series of studies of health services in a number of developing countries, sponsored by the Office of International Health of the U.S. Department of Health, Education and Welfare. (63) A recent report on community involvement in primary health care, prepared for a joint UNICEF-WHO

committee on health policy, reveals no substantial evidence to the contrary. (73)

The neglected study of sources of support for health care in rural areas may in part account for the oversight of many small-scale examples of innovative approaches to self-help at the community level. By focusing on governmental and charitable sources of support, analysts in many countries may have overlooked the contributions that communities themselves are making in attracting outside support or in substituting for it. Direct payments for traditional health care, moreover, probably are being underestimated. Also, the potential of traditional medicine to become an integral part of primary health care is only reluctantly being considered. It may also be true, however, that many rural areas have come to expect and rely on government or charitable sources of health care financing and may therefore not be as energetic in drawing upon their own resources as they might be. One can only recommend that analyses of health care financing will in the future concern themselves more specifically with the sources of health care support in rural areas. Wishful references to the Chinese example must give way to a careful consideration of its adaptability to other countries, given their different economic, cultural and political circumstances.

B. Case Studies of Developing Countries

While there are many reports on the health situation in developing countries, there are very few case studies of health care in developing countries that focus on financing, or that at least include an analysis of sources of support within a broader conceptual framework. Reviewing some of these will illustrate the diversity of financing sources on which they rely and indicate the problems researchers face in obtaining and analyzing the necessary data.

1. Colombia

Colombia has a population of 25 million and a per capita income of about US \$500 (1974) and thus ranks as relatively large and economically advanced among developing countries. According to a health care financing study conducted by the Ministry of Health (MOH), health sector expenditures represented 4.5 percent of GNP in 1974. (12) This was equivalent to a per capita expenditure of about US \$22. Colombia probably leads most other developing countries at its level of development in terms of resources allocated to health care. Nevertheless, the country

still has a highly unequal distribution of health services. With medical facilities and personnel highly concentrated in the urban areas, about half the country's rural population (six million people) does not have access to primary health care. However, the Ministry of Health has in recent years given a high priority to the expansion of primary health care in the rural areas.

The first health sector study of Colombia that included a financial analysis of some depth was part of a 1970 country assessment by the World Bank. (76) It revealed that Colombia uses all of the sources of health care financing discussed in Chapter II, above. In 1970, the two largest domestic sources were general tax revenue and social insurance. Other sources of importance, particularly at the state and municipal levels, were the net income from lotteries and betting operations, as well as sales taxes on beer. Total expenditures from these and other recorded sources rose from a steady level of 1.8 percent of GNP between 1961 and 1965 to 2.8 percent in 1970. Between 1961 and 1970, social insurance financing rose by about 700 percent, until it accounted for at least half of total non-private health care support. In contrast, during the same period, public sector financing for the general population rose by only about 240 percent.

Colombia has separate social insurance systems covering private and public sector employees. The private sector system is financed by a seven percent payroll tax on employers and a 3.5 percent tax on employees; in addition, the private system receives a government subsidy accounting for five percent of its total receipts. The public sector social insurance system, consisting of a large number of separate funds, is supported directly by the government for 62 percent of total receipts, with another nine percent publicly funded through the budgets of participating ministries; the remaining 29 percent of receipts are deductions from employees' wages. No trend data are available for the period 1970-74. For 1974, the MOH study reports that 25 percent of total health sector expenditures were financed by payroll contributions to the social and government insurance systems. An approximately equal percentage was accounted for by government subsidies paid to these two systems and by direct fees and sales collected by the systems' health care institutions. Thus, in 1974 as in 1970, about 50 percent of total recorded health care financing in Colombia was used to support the public and private sector social insurance systems which together cover at most 25 percent of the population.

Rapid increases in the level of health care financing from general revenue sources began in 1968, while the social insurance system also

continued to grow rapidly. As a result of these increases—and of foreign aid contributions whose proportion of total health sector financing increased from one percent in 1968 to almost 10 percent in 1974—the health sector's share of GNP had risen to 4.5 percent by 1974. Much of the foreign aid required counterpart funding from domestic sources, largely through the Ministry of Health. This probably explains to a large extent the sharp increase in MOH funding. It also is important to mention that the MOH financing study included neither an accounting of all private household expenditures, nor health care financing by a number of sources other than the major insurance systems. A more recent analysis of other than MOH financing of health care concludes that private medicine, including self-medication of drugs, represents a substantial share of total household consumption of health services; (78) the MOH study thus underestimates the proportion of national income devoted to health.

On the other hand, the health sector in Colombia includes a number of institutions that absorb substantial amounts of total financial support but whose programs include some non-health-related activities. This is true of the Institute of Family Welfare, a semi-autonomous agency of the Ministry of Health, which carries out the major share of the government's nutrition programs but also supplies child care services in support of women in the labor force. Similarly, a large proportion of social insurance contributions is allocated to invalidity and old age pensions which normally are not considered health care support. Because these funds are not excluded in the MOH study, it overstates the relative importance of social insurance financing of health care. It must also be noted, however, that the systems borrow from their pension funds for the construction of health care facilities. The MOH study makes no mention of this source of financing health care.

The MOH health financing study is more extensive than any previous accounting of health care support in Colombia or any other developing country. A shortcoming of the study is its failure to distinguish clearly the sources of support received by health sector organizations other than for the Ministry of Health itself. The supplementary research study, cited above, (78) yielded this information for a total of 15 such health sector organizations. This study found that each organization typically draws upon several different sources of support. In a few cases, the major source was general tax revenue, channeled through the Ministry of Health. Some also depended heavily on international support. Others relied on private sector contributions, both from corporate and individual sources. By examining data from national household surveys, the study also established that households directly spend an average of

3.3 percent of disposable income for health care. To some extent, this includes fees for services charged by public health and social insurance-supported facilities, but it also includes fees paid to private health care practitioners and expenditures for self-administered medicines. One important source for which no data exist in Colombia is community self-help; there are many noteworthy examples in Colombia of such projects which usually involve in-kind contributions, sometimes as a requirement of obtaining financial support from either public or private sector sources. Lessons to be drawn from the Colombian case will be compared with the other country case studies below.

2. *South Korea*

With a population of 35 million and a per capita income of US \$470, Korea ranks close to Colombia among developing countries by most indices of social and economic development. However, the country allocates only about 2.7 percent of GNP to health care, and direct spending by individual households accounts for an estimated 84 percent of the total. The public sector contributes only about 13 percent, half of which is provided from central government and half from local government revenues. The remaining three percent of total financing derives from employer and charitable sources. The minor role of the public sector is reflected also in the fact that health care expenditures represent less than one percent of the total central government budget. Korea thus represents a significantly different case of financing health care, compared with Colombia. A case study of health care financing in Korea was presented at a recent WHO meeting of experts. (74)

The average per capita expenditure on health care in Korea from all sources is about US \$14, which also compares unfavorably with the US \$22 for Colombia, reported above. This difference can in part be explained by the low level of government support for health care in Korea, although a high level of general tax revenue allocated to health care would to some extent displace household expenditures. The latter, which in Korea represent 4.1 percent of average household expenditures, are proportionately about 25 percent more than what households in Colombia spend on health care directly. Most health care in Korea is provided by private practitioners. Over 80 percent of all medical doctors and hospital beds are located in cities with over 50,000 inhabitants which account for less than half of the total population. Doctors see relatively few patients a day, on the average, and hospitals are greatly underutilized. The study attributes both phenomena to the limited purchasing power of most households.

In an apparent effort to increase the level of resources being allocated to health care, as well as to improve horizontal and vertical equity in access to these services, the Korean government in 1977 initiated a new national health insurance system. (18) It will be administered by private health insurance companies with premiums fixed by the government. The system resembles social insurance in that both employers and employees will be required to make payroll-based contributions, with each paying half of the total contribution per worker. Workers in small and traditional enterprises that are not required to participate in the insurance system will have community-based health insurance plans available to them on a voluntary basis. The government will subsidize the lowest income segments of the population by paying part or all of their premiums.

The study just cited points to a number of shortcomings of the new insurance system, such as its limited coverage of long-term and catastrophic illness. It is too early to evaluate the impact of privately supported and administered health insurance in Korea, but the plan is sufficiently bold and innovative for a developing country to merit being carefully observed by other developing countries.

3. *Bolivia*

With a population of 5.5 million, Bolivia is a relatively small country; its average per capita income of US \$260, as well as other standard indices, rank it as one of the least developed countries in Latin America. In 1974, Bolivia allocated two percent of GNP to health care, counting only known sources of financing. Expenditures per capita from these sources were estimated at US \$6. The level of resources allocation could be as high as four percent of GNP and US \$12 per capita if direct household expenditures, charitable contributions, and other sources were included in the analysis. Nevertheless, the distribution of modern health care practitioners and facilities highly favor the small urban population and leave most of the large rural population without access to such services.

Bolivia was in 1974 subjected to an intensive health sector assessment, carried out jointly by its health authorities and a technical assistance mission of the U.S. Agency for International Development. (65) The sector assessment included a study of the country's sources and allocation pattern of health care financing within the broader context of health conditions and health sector programs. Bolivia uses all of the sources described in Chapter III, above, except for lotteries and betting operations. However, the country has data only for its principal sources,

namely general tax revenue, foreign aid channeled through the Ministry of Health and several other governmental agencies, and social insurance.

In Bolivia, about 55 percent of known health care financing is accounted for by social insurance. Although the system nominally functions under a coordinating umbrella organization, it consists of 10 separate funds that cover different segments of the country's modernizing economic sectors, such as mining, industry, transportation and banking. The largest of these funds, as well as several smaller ones, have constructed their own health care facilities. Government employees have their own health care coverage.

The social insurance funds in Bolivia are supported through a 3.5 percent deduction from employee wages and an employer contribution of 15 percent, based on his payroll. This latter percentage is unusually high (in Colombia, for example, it is seven percent). In addition, the insurance funds charge fees for services, although this is a very small proportion of their total income. Average per capita costs of the insurance funds vary greatly, ranging from about US \$10 for the largest fund, to US \$60 for one of the smaller funds. These variations reflect different operating efficiencies as well as different levels of benefits. They have also complicated attempts to unify the operations of the social insurance system. Another problem is that the insurance funds are operating with substantial deficits which they are financing from that portion of their incomes intended for pensions. Thus, although in 1974 the Bolivian social insurance system accounted for about 55 percent of all recorded health care financing, it was highly inefficient and fiscally unsound in its operations.

Together, these social insurance or equivalent sources cover about 20 percent of the urban population and none of the rural population. Some of the remaining urban population is served by either private practitioners or public health services, depending on its income level. The 70 percent of the Bolivian population living in small villages and rural areas is for the most part beyond the reach of modern health care. The Ministry of Health, which controls about 35 percent of total recorded financing, some of it supplied from foreign aid, has concentrated its resources in the urban areas. The remaining 10 percent of total recorded funds are provided from general tax revenue through other ministries and agencies and include what little the country has so far expended for environmental sanitation in the rural areas.

Many small villages in Bolivia have in recent years constructed health posts in anticipation of receiving funds from the Ministry of Health to operate them. The ministry, with its limited resources, has not been able to comply with these requests in most cases. Instead, the rural popula-

tion continues to depend on traditional health care practitioners. In the urban areas, relatively affluent middle and upper class segments of society use private medical care rather than using social insurance or public health care services. Thus, direct household expenditures in both rural and urban areas probably are substantial.

4. *Dominican Republic*

The Dominican Republic, with 4.5 million inhabitants, has a per capita income of US \$520, slightly higher than Colombia's per capita income (see above). By most other indices of social and economic development, however, this country compares more closely with Bolivia than Colombia. This conclusion is supported if one looks at health conditions and the level of health care financing in the Dominican Republic.

This country also was the subject of a comprehensive health sector assessment in 1974, jointly sponsored by local health authorities and the U.S. Agency for International Development, and—as in the case of Bolivia—included an analysis of health care financing. (66) The health sector accounted for 2.6 percent of GNP in the Dominican Republic. Expenditures per capita were US \$14. At first glance, the Dominican Republic in 1974 contributed 65 percent of total recorded financial support for health care from public sources. About half of these funds, however, were used to finance loans for private sector investments in health care facilities and equipment. These resources, most of which are foreign aid loans, are managed by the central bank and represented 30 percent of total health care expenditures in 1974. This arrangement indicates that the Dominican Republic relies heavily on the private sector to expand health services. If one excludes government support of investment in private health care facilities from the total of public funds allocated to the health sector in 1974, the proportion of GNP accounted for by governmental health care is reduced from 2.6 to 1.8 percent. On this more consistent basis of comparison, the Dominican Republic appears to expend a smaller proportion of its GNP on health care than does Bolivia. In reality, however, it is likely that the Dominican Republic relies on private health care to an even greater extent than does Bolivia. This tentative conclusion is supported by the relatively lower proportion which social insurance represents in the adjusted total of health care financing. Of the adjusted total, the Ministry of Health accounts for 41 percent of health care financing and social insurance for 37 percent. Other public agencies account for the remaining 22 percent, including—as in Bolivia—environmental sanitation.

Although health sector resources heavily favor the larger cities, the

rural areas are not entirely without financial support. Agriculture in the Dominican Republic is heavily oriented toward sugar production which is also the country's principal source of foreign exchange earnings and of general tax revenue. The domestic and international sugar companies employ some proportion of the rural population and provide it with certain social services, supposedly including health care. However, the extent of these services and their financing are not known.

The health sector assessment also had to omit data from a household survey that remains unavailable for analysis. The combination of employer financed health care in the rural areas and—because of heavy reliance on private medicine—a high level of direct household expenditures on health care in the Dominican Republic would probably substantially increase the level of health care support, measured as a proportion of GNP. With the possible exception of health care provided for sugar workers, however, the insufficiency of health care for the poorest of the urban population and for much of the rural population, documented in the health sector assessment, is not likely to be contradicted by these omissions.

5. *Botswana*

Most African countries are underdeveloped by most indices of economic and social development. Modern health care in many African countries was first introduced by foreign religious missionaries. In recent years, foreign aid has been used to finance the expansion of health care infrastructure. Missionary as well as foreign aid-financed health care facilities, however, require increasingly large amounts of support from general tax revenue to sustain them. In a number of African countries, according to a recent study of their health sector expenditures, (32) the proportion of total government budgets allocated to health care has declined in recent years. This study included 14 countries, most of which showed foreign aid as a major source of health care financing. In addition to recording central government expenditures from general tax revenue, the study maintains that in some countries taxes collected by lower governmental levels are the second most important source of domestic health care financing. Several countries also have instituted social insurance, but its share of total health care financing is still insignificant.

One African country—Botswana—which was not included in the above study, has been subjected to one of the most exhaustive studies of health care financing anywhere among developing countries. Carried out in 1977, the study is based on data for 1976 and earlier years. Its

findings were first presented at the recent WHO meeting of experts, referred to above. (74) Botswana, with 700,000 inhabitants, is one of the smallest African countries, although it is comparatively large in territory. It has a per capita income of US \$270 and is a traditional agricultural economy—except for mining operations—with 85 percent of its population living in the rural areas. Health services are financed from general tax revenue (46 percent), foreign aid (33 percent), religious missions (one percent), mining companies and other employers (four percent), and to a large extent from direct payments by households (16 percent). The country does not have a social insurance system. District and town governments have responsibility for the construction and maintenance of clinics and health posts, financed in part by central government allocations with the balance collected from local sources (primarily fees for services).

Total health care expenditures represent 5.3 percent of GNP. Excluding direct private payments, most of which are not included in other case studies, Botswana's 'health effort' is 4.5 percent of GNP. Excluding foreign aid, domestic health care support still accounts for three percent of GNP. Thus, at an early level of development, Botswana appears to be giving relatively high priority to its health sector. The high level of foreign aid the country receives may in large part explain this priority; however, it could also be argued that because of a strong domestic effort, sources of foreign aid have been attracted to assist Botswana in the development of its health care system.

Over 90 percent of the government's investment in health care infrastructure is being financed with foreign aid, most of which is in the form of grants rather than loans. The proportion of the government's current expenditures allocated to health care has risen slightly in recent years, but it apparently expects much of the increases in operating expenditures to be financed through direct payments by the recipients of health care and from local government tax revenues. Only 41 percent of local government operations, including health care, were funded from central government sources other than foreign aid. Of total estimated direct private expenditures, however, the study estimates that 42 percent are made to traditional health practitioners, 32 percent for self-administered medicines, 19 percent to public health facilities, and seven percent to private medical doctors. The study concludes that in the future, shortages of operating funds for newly provided health care facilities are likely to present a major obstacle to their full utilization and to the further expansion of modern health care.

This brief review of health sector financing in five developing countries illustrates the limitations of international comparisons, given differences

in organizational and financing mechanisms, unknown variability in the reliability of data, and the almost total lack of information on private health care expenditures. Also, a number of sources of support, including charitable contributions and community self-help, probably are of considerable importance in all of those countries, but little or nothing is known about them. Thus, in general it is likely that levels of support for health care are being underestimated. Some sources, however, involve overestimates when they are listed as health sector institutions but substantial proportions of their resources finance other than health care activities. This is true of social insurance revenues, some proportion of which finances pensions rather than health care. Pension reserves, however, in Bolivia and the Dominican Republic are used to help finance health care operating deficits, while in Colombia they help finance investment in health care facilities.

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CONCLUSION

This study of health care financing in developing countries has focused sequentially on distinguishable aspects of the subject. Throughout the discussion, however, a number of pervasive problems have been touched upon which are significant enough to warrant special attention for anyone contemplating strategies of health care expansion and improvement, including the mobilization of financial support necessary to implement such strategies. In concluding this study, therefore, it may be useful to identify the most important of these problems and to suggest the directions which possible solutions might take.

Perhaps the most obvious problem is the insufficiency of financial support to provide minimally adequate health care for everyone who needs it. Even if solutions can be found to some of the other problems summarized below, most developing countries will still not be able to allocate enough financial resources to the health sector to satisfy this basic human need in the foreseeable future. Solutions to the problem in the long run will require increasing as much as possible the general tax ratios in developing countries, to increase the proportion of general tax revenues allocated to the health sector, to broaden the coverage of social insurance or nonprofit group health insurance, to rely more extensively on self-help at the community level, and to increase foreign aid contributions, preferably in the form of grants rather than loans.

No major increases in the allocation of funds for health care should be advocated, however, without also requiring better coordination among the major sources of funds. Lack of coordination is a major problem that is increasingly evident as developing countries—as well as international aid agencies—increase their commitments to health sector development. Most striking is the lack of coordination in many developing countries between public health and social insurance health care programs. Many of their facilities are duplicated in close geographical proximity to one another and they usually compete for the same limited number of doctors and nurses. Another area where coordination is of increasing importance is in community self-help efforts. Unless there are common standards and practices of primary health care, such

efforts—if pursued independently at the community level—may create innumerable new problems of coordination with higher-level tiers in the health sector hierarchy.

Another problem area which is in part related to incoordination, is the inefficiency with which currently available financial resources are being utilized. Costly physical facilities are constructed without assuring them of adequate operating support. Facilities and equipment frequently are underutilized because of administrative delays in allocating operating funds, or in approving the reallocation of funds from surplus to deficit expenditure categories. Frequently, budgets of health care facilities include primarily the salaries of practitioners without providing them with sufficient medical supplies to carry out their functions. Problems of inadequate transportation and communications also add to the inefficiency of current resources utilization. Some of these problems can be resolved in part by increasing the level of financial support, while many others require improved administration of currently available resources.

Major inequities in the distribution of currently available financial support for health care also represent a major problem area. A small proportion of the total population receives a disproportionately large share of total funds available. It is difficult to justify expenditures on health care that are far in excess of the basic needs of a privileged minority, while the large majority of the population has less than minimally adequate health care or none at all. A number of developing countries could significantly reduce current health care deficiencies if they undertook a significant reallocation of resources. They could accomplish this in part through greater coordination and cooperation among public health and social insurance health care systems. It would also help for the latter to expand their coverage more rapidly by accepting many more smaller companies that pay lower wages and would thus not be able to contribute as much to the system as larger employers that on average pay higher wages.

Lack of coordination and the increasing concentration of funds in the social insurance systems of several developing countries have contributed to yet another major problem, namely the rising cost of health care in developing countries. This problem may have been exacerbated in a number of cases by large foreign aid contributions that are being expanded over a relatively short period of time. The concentration of funding and its rapid increase for some purposes has tended to drive up the prices of many health care components. One must realize that developing countries usually have limited absorptive capacity. As much as they need additional financial support for health care, they are gener-

ally not able to make fully efficient use of it in the short run. It takes time for the supply of health care practitioners to increase, and for the health care delivery system to be expanded geographically. Inflation in medical care costs can sharply reduce the purchasing power of greater financial support. Solutions must emphasize the need to increase the supply of health care, rather than merely to increase the demand for health care.

A major problem that is widely recognized but seemingly intractable in most developing countries, is the intransigence of the 'health care establishment' in not accepting certain fundamental changes in the delivery of health care. The medical profession continues to insist that doctors must remain the principal providers of health care and often actively opposes the expanded use of para-medical personnel for the delivery of primary health care unless close supervision by medical doctors is guaranteed. Furthermore, those who decide upon the allocation of funds often are reluctant to delegate decision making power over resources allocation to lower levels of authority or to permit greater flexibility in the allocation of funds even at higher levels of authority within the health sector. Where changes are at least being experimented with, it is usually through the leverage that sources of foreign aid can apply if they want to.

Those advocating a major change of health sector priorities from the current concentration of resources in the urban areas to the expansion of primary health care in the rural areas, often cite the Chinese rural health care system as a model. China, the largest country in the world and also one of the poorest, has nevertheless achieved something close to universal health care coverage. References to China, however, rarely address the question whether communal self-reliance in rural health care delivery can readily be adopted by other developing countries and effectively integrated with their existing health care systems. A few experiments with a Chinese-style system of low-cost health care delivery are in progress in developing countries, but these usually rely on funding from higher levels in the hierarchy rather than on communal insurance funds as in the Chinese example. The principle of local self-reliance is a difficult one to implement in societies in which large segments of the population at the bottom of the social structure have always looked to higher levels for support.

A basic conceptual problem to be considered concerns the relationships that exist among the four basic human needs mentioned in the Introduction—food, clothing, shelter, and health care. Developing countries have serious deficiencies in each of these areas, as well as in education and other social services. Additional financial resources are

necessary to satisfy all these needs for all segments of a country's population. Health care thus competes for additional financial support with other essentials. Allocating more funds to one area should not be at the expense of another. Solutions lie in the direction of recognizing that satisfying any one of these needs can have a positive impact also on reducing deficiencies in the others. As much as possible, solutions in these important areas should therefore be coordinated with one another. Such coordination can result in more efficient utilization of existing resources, as well as help to attract new sources of support. Foreign aid agencies are generally supportive of efforts to coordinate development programs in agriculture, education and health care.

The multiple determinants of health status, and of demand for health care in a population—outlined in Chapter I—also represent a major problem in determining priorities in the allocation of financial resources to the health sector. This problem is further complicated by the limitations—discussed in Chapter III—of the conceptual models of economic analysis that one might use to identify such priorities. More research on the question obviously is necessary to improve our understanding of the interaction of important variables.

Finally, a problem that was illustrated in Chapter IV concerns the severe limitations of available data on health care financing in developing countries. All of the studies cited had to rely heavily on special data gathering approaches that often are expensive and time consuming. The routine collection of data series is part of the answer to this problem, but only if there is a clear understanding of what kinds of data are useful for the types of analysis discussed in Chapter III. Standard statistical series are not always very useful for answering the kinds of questions raised in this study, and in the relevant theoretical literature. Most data on financial flows are being collected for purposes of budgetary control rather than economic analysis. Special data gathering efforts will usually be necessary whenever policy makers have a need for analyses of health care financing. Such analyses, if they are to be theoretically valid as well as being practically useful, will require special skills in this line of research. Developing countries would do well to develop such skills among some of their indigenous professionals in the health sector or in local research centers.

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