



# **A Health Sector Analysis of Peru Technical Report**

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## **Health Care Financing in Peru**

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## FOREWORD

This is one of nine reports prepared for the Health Sector Analysis of Peru (see back cover). In its preparation I had the benefit of having worked as technical advisor with a group of Peruvian researchers who collected the data and analyzed them in several reports first published in Peru in Spanish. Professor Octavio Chirinos Valdivia of the Graduate School of Administration and Management (ESAN) in Lima supervised the research, carried out during 1984-85 by economists Jose Carlos Vera La Torre and Mario Antonio Ayres Sicheri.

Subsequent to completion of research for the HSA-Peru project, further research on private sector health care financing in Peru was carried out under the USAID regional project "Health Care Financing in Latin American and the Caribbean" (Project No. LAC-0632-0-5137-00). Preliminary results of this research have been used in Chapter III of the present report. The complete report of the private sector study, directed by Alfredo Solari (M.D.) for the Group Health Association of America (GHAA), is forthcoming. Dr. Solari was assisted by Gail Marie Crowley of the GHAA staff, and Peruvian researchers Julio Castaneda Costa (M.D.), Jose Carlos Vera La Torre, and Maritza Torres Garazantua (social worker). GHAA is a project subcontractor to the State University of New York at Stony Brook.

The present report also draws upon the other technical reports prepared for the HSA-Peru, whose authors all served as technical advisors to the project. Without their analyses, I could not have ventured as far as I did in my attempt to develop a composite picture of Peruvian health care financing and population coverage. All assumptions made by me, and the nature of the analysis itself, are of course my responsibility alone. In the final editing of this report I had the valuable cooperation of Dr. Gretchen Gwynne, a Stony Brook colleague.

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## I. INTRODUCTION

In this report, the level and composition of Peruvian health expenditures in both the public and private sectors, over the five-year period from 1980 to 1984, are analyzed. The public sector analysis focuses on the Peruvian Ministry of Health (MOH), thus complementing a companion report (HSA-Peru, 1986: Mesa-Lago) focusing on the medical program of the Peruvian Institute of Social Security (IPSS); together the two reports provide estimates of health care expenditures and coverage for the entire Peruvian health sector. In each report, estimates of health care expenditures are systematically related to realistic estimates of health services coverage, making it possible to calculate average annual per capita expenditures for different segments of the population and for the health care providers to whom these population segments have financial and/or geographical access. The analysis in this report is introduced by relating changes in health sector expenditures to the country's recent severe economic recession.

Peruvian health care expenditures in 1984, including both public and private sector outlays, totaled nearly 212 billion 1980 soles (Table 1A) or US \$732 million (Table 1B), and represented 4.5 percent of Peru's GDP (Table 2). In relative terms, aggregate health care expenditures remained fairly stable from 1980 to 1984, yet this was a period of highly unstable economic conditions. The annual GDP growth rate first rose, from three percent in 1980 to over four percent in 1981; it then declined precipitously to minus 14 percent between 1981 and 1983, as Peru experienced major natural disasters and sharply reduced foreign exchange earnings. In 1984, GDP once again increased at a rate of over four percent, but economic conditions remained highly unstable, with a rapidly declining international exchange rate and accelerating domestic inflation (1).

That under these circumstances aggregate spending for health care did not deteriorate in relative terms conforms to a general assumption about the elasticity of demand for this category of goods and services: that health expenditures rise more rapidly than GDP during economic expansion, and decline more slowly than GDP during a recession. Given Peru's per capita income of about US \$850 (1984) and its continuing severe economic problems, however, aggregate expenditures for health care cannot be expected to increase as a proportion of GDP in the near future. Absolute increases (or decreases) in aggregate health care expenditures are thus tied directly to the economy's overall performance. Such changes in absolute financial resources availability, of course, are a destabilizing influence on health care delivery.

Total health care expenditures in Peru were reduced from a high of US \$813 million in 1981 to US \$732 million in 1984, a 10 percent reduction over four years (Table 1B), but this was less than the 16 percent decline in per capita income of the Peruvian population for this same period. This relatively modest decline in aggregate health sector expenditures is explained by an increase in spending for private medical services: a 20 percent decline in public health care spending was offset by a 12 percent increase in expenditures for private health care, reducing public expenditures between 1981 and 1984 from 73 to 67 percent of the health sector total and increasing the private share from 27 to 33 percent. In the public sector, MOH expenditures declined by about 16 percent, while medical care expenditures under IPSS dropped 26 percent.

While the reduction in MOH expenditures was about the same as the decline in GDP per capita, the Ministry's share of (adjusted) Central Government expenditures (2) declined from over 4.9 percent in 1980-1981 to 4.2 percent in 1984 (Table 2). IPSS expenditures for medical care as a proportion of (adjusted) Central Government expenditures dropped even more sharply, from 6.3 percent in 1981 to five percent in 1984 (3). The statistical explanation for this is to be found in the respective elasticities of Central Government, MOH, and IPSS expenditures with respect to GDP. Until 1981, the MOH and IPSS shares grew more rapidly than the overall Central Government share, but this tendency was sharply reversed in 1982-83 when MOH and IPSS spending declined much more rapidly than Central Government expenditures in general. Significant relative expansion of Central Government spending in 1983-1984 was not accompanied by corresponding budgetary increases for public health, so the two agencies' shares declined still further. Indeed, in 1984, MOH expenditures on medical care as a proportion of Central Government spending experienced their sharpest annual decline of the 1981-84 period; the combined MOH and IPSS share of total (adjusted) Central Government spending had increased from 9.8 percent in 1980 to 11.3 percent in 1981, but had decreased to 9.2 percent by 1984.

It is evident that public sector health expenditures have not only suffered from sharp cyclical fluctuations; they have also shown a longer-run tendency to decline. It is unclear whether this decline in the budgetary priority assigned to public health services was the intent of policy makers, but it did coincide with an increase in private health care expenditures. The new government has attempted to reverse the decline in MOH financing by seeking an increase in MOH expenditures to over seven percent of Central government spending, but this has not yet been carried out. IPSS revenues were also expected to increase as the result of more rigorous collection of mandatory contributions; however, continuing high unemployment has reduced the wage base and thus potential IPSS revenues as well.

It is also noteworthy that the MOH would have suffered

sharper budgetary reductions over the period 1982-84 were it not for a growing influx of foreign aid since 1980. The expenditure data suggest a clear correspondence between the Peruvian government's waning commitment to the MOH between 1980 and 1984 and its acceptance of substantially increased foreign donor support for primary health care (see Chapter II). It is also likely that the Garcia government expected to finance much of its announced increase in MOH spending from foreign aid, but there were no major new commitments of foreign aid from any source during the new government's first year in office.

The private sector has thus compensated, to an extent, for the decline in Peruvian public sector health care spending -- a fact that has not yet been acknowledged by the new government. In Chapters II and III, the implications of the decline in MOH expenditures and the corresponding increase in private health care spending will be examined in detail (4). Major conclusions deriving from the analysis are presented in the final chapter.

## II. MINISTRY OF HEALTH EXPENDITURES

The Ministry of Health is responsible for providing modern health care for about 11 million medically indigent Peruvians, but its current level of funding and its distribution of these funds provide coverage for only five million. The MOH is also responsible for exercising regulatory control and policy guidance for the health sector as a whole; for promoting preventive health care; and for constructing potable water and basic sanitation facilities in rural areas. Most of its resources, however, are currently allocated not to these tasks but to the delivery of curative medical care.

What financial resources does the MOH command, and how does it allocate these resources in light of its multi-faceted mandate? Table 1 shows that the MOH accounts for about 27 percent of total Peruvian health sector expenditures, a proportion that has declined only slightly over the period 1980-84. In absolute terms, however, the Ministry had only about US \$200 million to spend in 1984, compared with some US \$235 million annually in 1980 and 1981. Moreover, while the Ministry's financial resources were shrinking by about 16 percent, Peru's population increased by almost the same percentage. Average per capita expenditures for the Ministry's target population thus dropped from about US \$24 in 1980 to US \$20 in 1984. But MOH services are accessible to only half of its target population. Per capita expenditures for the five million people the Ministry does reach, therefore, are twice this average, or about US \$40.

But even this figure is misleading. With over two-thirds of all MOH hospital beds and about the same proportion of medical doctors employed by the MOH located in Peru's major urban areas, home to one-third of the country's population (HSA-Peru 1986: Locay), the Ministry's financial expenditures are also concentrated in the cities. MOH services are within reach of about two million urban and three million rural poor, leaving one million urban and five million rural poor, also dependent on public health care, without access to MOH services.

Because of the urban concentration of MOH hospital facilities and medical personnel, and because of the heavy financial burden that hospital services place on the Ministry, only about one-fourth of total MOH expenditures are used to provide primary health care. This means that the MOH actually spends only about US \$10 per capita to provide primary health care for the estimated five million urban and rural poor it

covers -- not US \$40. Since available data on health services utilization do not permit any assessment of the quantitative, and much less the qualitative, adequacy of primary health services, one cannot conclude whether \$10 per capita is enough, too much, or too little to spend on primary health care, but what circumstantial evidence there is suggests that many MOH health centers and posts are poorly maintained and have insufficient inventories of essential medicines and other supplies.

Standard budget data obtained from the MOH for the five-year period from 1980 to 1984 allow one to discern some important aspects of its revenues and expenditures, even if they do not permit detailed calculations of expenditures by level of care, types of services, or unit costs of services. In the following sections, the data available on MOH expenditures at the central and regional levels are analyzed.

#### A. Revenues and Expenditures

For the period 1982-84, Central Government tax revenues declined from 88.5 to 86.7 percent of total MOH income (Table 3). User fees also declined, from 8.2 to 7.2 percent. Bearing in mind that resources declined in absolute terms, the increase -- both proportionate and absolute -- of borrowing takes on particular significance. Most of this borrowing was foreign aid, although some of the Ministry's deficit was also financed from domestic sources of credit (largely for construction of facilities). All in all, borrowed funds increased from 1.5 to 4.6 percent of total MOH revenues between 1982 and 1984. The source of revenue labelled "transfers" (Table 3) includes counterpart funding for foreign aid loans as well as grant aid -- if it was received in monetary form; in-kind contributions are not accounted for in MOH budgetary records.

More revealing is the information in Table 4, showing the relationship between sources of revenue and expenditures by program category. The MOH budget has identified program areas separately only since 1982; prior to this, all centrally-funded programs were lumped into one category. In addition to "Central Administration," the MOH now includes seven central program categories. All health services except for those delivered under these seven centrally-funded and administered programs are financed and administered through the Ministry's health regions.

Centrally-funded activities include virtually all facilities construction and the purchase of most equipment ("Physical Facilities"); the construction of rural water and sanitation facilities and the provision of goods and some related services

through these facilities ("Environmental Programs"); in-service training of MOH employees ("Training"); the maintenance of a national institute that conducts bio-medical research and tests drugs for consumption in Peru ("National Institute of Health"); and the administration of programs to provide nutritional supplements through health facilities ("Nutrition"). To these five program areas, separately identified as of 1982, two more were added in 1983 and 1984: "Communicable Diseases" and "Primary Health Care."

"Central Administration," which represents close to nine percent of total MOH expenditures (Table 5), is financed almost entirely by tax revenues. "Physical Facilities" is the next largest expenditure category, representing about seven percent of the total MOH budget; about 40 percent of those expenditures are financed with borrowed funds, with the rest paid for out of tax revenues. The "Nutrition" and "Primary Health Care" programs together account for about six percent of total MOH expenditures; nutrition is largely financed from tax revenues and some user fees, while the primary health care category represents mostly foreign aid and counterpart funding.

All told, central level expenditures represented 27 percent of total MOH expenditures in 1984 -- a proportion that had increased substantially from the 1982 level of 23 percent. Tax revenues allocated to the MOH during this period declined from 54 billion to 50 billion soles, but borrowing tripled, which largely offset the declines in income from general tax revenues and user fees (see Tables 3 and 4). It is the increase in borrowing, therefore, as well as some increases in centrally-funded and administered programs, that explain the relative increase in central MOH expenditures and the corresponding proportional reductions in regional expenditures.

Despite these reductions, the MOH pursued a policy of "regionalization" of the administration of health services throughout the 1982-84 period. This policy engendered a major reorganization within the Ministry in 1983, when the administration of health services, carried out at the department (state) level until 1982, began to be conducted at the level of "health regions" that no longer coincided with state boundaries. Initially, five such regions were created, but by 1984 and this number had been increased through subdivisions to 16; by 1985, there were 18 separate health regions.

As the 1982-84 economic recession hit Peru, the MOH tried to soften its impact on recurrent expenditures by sharply curtailing capital spending (Table 6) as well as by increasing funding through centrally-funded programs (Table 5). The increase was especially notable in the case of the nutrition program, which reached a funding peak in 1983 -- the year national disasters

struck Peru and the recession reached its depth. Overall, recurrent expenditures increased proportionately from 90 percent in 1981 to 94 percent in 1983, and then declined to 90 percent in 1984; they were curtailed more sharply at the central level than the regional, in order to protect regional-level recurrent obligations. Capital spending decreased by half between 1981 and 1983, but recovered in 1984 as foreign aid expenditures increased and economic conditions improved. Increases in capital expenditures administered at the regional level in 1982-83, however, were not sustained in 1984.

## B. Expenditures by Budget Categories

MOH central expenditures are broken out by program and category in Table 7, which provides figures for recurrent and capital spending by line item for each category. It is evident, for example, that the central administration budget is heavily burdened by pension payment obligations; that almost two-thirds of the nutrition program consists of expenditures for goods and services, with the balance going for wages; that over three-fourths of environmental program expenditures are for the construction of water ducts and sanitation facilities; and that the PHC program at the central level consists largely of health center and health post construction and the provision of equipment for these facilities, financed mostly with foreign aid and required domestic counterpart funds. Wages for MOH central administration, which totaled one billion soles in 1984, represented only six percent of total central MOH expenditures and less than two percent of the total MOH budget that year. It cannot be said, therefore, that the MOH is top-heavy with administrative costs. Instead, the MOH exerts its still very much centralized power through its control of expenditures for goods and services and for the financing of construction and equipment purchases. The "Pensions" category provides further evidence of the Ministry's administrative centralization.

Table 8, in which the evolution of MOH total recurrent expenditures over the five-year period from 1980-84 is shown, illustrates the recent growth in the proportion of wages and benefits as well as pension payments. Even as the Ministry's total resources were shrinking by 10 percent, its expenditures for wages and benefits were increasing, in real terms, by nine percent -- from 33 million soles in 1980 to 36 million in 1984. Wages actually topped 38 billion in 1983, the year of economic and natural catastrophies. Pension payments also doubled, in both relative and absolute terms, and now account for nine percent of total MOH recurrent expenditures annually. This expansion in personnel expenditures was irresponsible, particularly in light

of the sharp reduction in expenditures for goods and services, the two line items that include essential medicines and other supplies as well as maintenance. Purchases of goods declined from 15.3 billion soles in 1981 to 8.7 billion in 1984 -- from 24 to 17 percent of total recurrent expenditures.

Transfer payments also fell victim to the Ministry's protection of its wage and pension budgets. The reduction of transfers from 11 to only one percent of total recurrent expenditures is particularly significant, since the Ministry formerly supported health services provided by private voluntary organizations (PVOs) under this budget item. MOH protection of its recurrent cost obligations, especially at the regional level where most of its wage expenditures are concentrated, has coincided with the virtual elimination of support for PVOs (which mostly provide much-needed primary health care) and a sharp reduction in the goods and services that are essential to the provision of primary health care in the public sector. The only increases in spending have been for PHC facilities and for the wages of medical personnel to staff them.

Buildings and staff, however, do not add up to effective primary health care delivery in the absence of maintenance and medicines. Table 9, outlining MOH capital expenditures, shows that these declined, in absolute terms, by over 50 percent -- from 9.4 billion soles in 1980 to 6.0 billion in 1984. The major reduction in capital spending was in construction; purchases of equipment (most of it provided through foreign aid) actually increased. While the increase in equipment purchases was undoubtedly necessary, the reduction in construction has had mixed effects. New hospital construction has been slowed significantly -- a positive development, since the MOH is excessively burdened by hospital costs and oversupplied with beds (HSA-Peru, 1986: Carrillo). Renovation of existing health centers and posts and of regional hospitals, however, came to a virtual standstill. This, together with an almost total lack of expenditures for maintenance, has led to a serious decline in the serviceability of many of the Ministry's ambulatory and inpatient facilities, particularly outside the Lima/Callao metropolitan area.

### C. Expenditures at the Regional Level

A comparison of MOH central and regional level expenditures shows that goods, services, and pensions dominate the composition of the recurrent budget at the central level, while wages and benefits account for most of the recurrent expenditures at the regional level (Tables 10-13). Moreover, almost all capital

expenditures are made at the central level. These observations suggest that the Ministry's much-touted regionalization of health services administration has not actually resulted in reductions of control over the most important and most volatile variable expenditures: the purchase of goods, services, and equipment and the construction and renovation of facilities. The Ministry has remained a highly centralized organization, despite the fact that 73 percent of its budget is distributed to the health regions (Table 5).

The absolute growth in wage and benefit expenditures at the regional level, particularly since this occurred during a period of severe economic recession, appears to be related to the regionalization of health services administration. However, it has not been possible to determine to what extent this growth was due to wage increases or employment expansion.

One of the objectives of the regionalization of health services administration has been to redress the considerable imbalance in the allocation of MOH resources. But in the three years from 1982 to 1984, during which regionalization was implemented, the shares of financing for which the 16 health regions accounted did not change significantly (Table 14). Lima/Callao's share declined from 48.9 to 47.9 percent, and the five southern Andean regions -- Puno, Cusco, Ayacucho, Huancayo, and Huanuco -- increased their combined share from 17.7 to 18.4 percent. The country's poorest regions in the north -- Piura, Chiclayo, and Cajamarca -- suffered a decline in their combined share of MOH financing, from 8.8 to 8.5 percent. The fact that these were the regions hardest hit by natural disasters in 1983 may have lessened their absorptive capacity for expenditures by the Ministry, even if they needed more rather than less support.

The wages and benefits share of regional expenditures, which averaged 79 percent in 1984, varied considerably among regions. It was almost identical to the national average in the three most urbanized regions (Lima/Callao, Ica, and Arequipa), but was highest in the poorest regions, such as Cajamarca and Puno. Most of the other regions were slightly below the national average. The larger a region's share of wages and benefits, of course, the lower its share of essential medicines and other supplies, and also of services such as maintenance.

The category "Other" in Table 15 is broken down into some of its major components in Table 16. Here the all-too-small proportions of regional-level health care expenditures spent on medicines and maintenance are evident. In a reasonably well-supplied health service, medicines would account for approximately 15 percent of total expenditures, but the average for all Peruvian health regions is only 5.2 percent. Only two regions -- Ayacucho and Huancayo -- significantly exceeded the

national average for expenditures for both medicines and maintenance; the majority of the regions had even less to spend on medicines and maintenance than the national average. Not even the three urban regions were substantially better supplied with these essential goods and services.

The extent of the inequality in the distribution of MOH resources among the 16 health regions is evident in Table 17, which compares their population shares with their shares of total regional expenditures, hospital beds, and health centers and posts. These data allow one to determine to what extent the distribution of financial resources is a function of population distribution (as it probably should be), to the distribution of secondary and tertiary care (hospital beds), or to the distribution of primary care facilities (health centers and posts).

It is obvious that the distribution of both expenditures and hospital beds strongly favors the Lima/Callao health region, whose 28 percent of the country's population benefits from almost half of these resources. The imbalance between primary and secondary/tertiary levels of care in this metropolitan area is also apparent. With approximately 20 percent of the country's medically indigent population, Lima/Callao has only 13 percent of all primary care facilities, which helps to explain why hospital-based ambulatory services are so heavily utilized for primary care in the capital (see HSA-Peru, 1986: Gertler *et al.*). In the rest of the country, health centers and posts are more evenly distributed in relation to population. However, econometric analysis of the data in Table 17 suggests that regional financial shares are more likely a function of the regions' hospital bedshares than of their primary care facility shares (5).

There are probably many other variables that influence the distribution of health care expenditures. The fact that the distribution of primary care facilities does not significantly affect the allocation of financial resources by region (and may even be negatively related to expenditures) suggests that the Ministry's primary health care policy priority has had no bearing on how financial resources are actually distributed. This finding is also supported by evidence that over half of all health centers and posts outside the major urban areas may be inoperative due to poor maintenance (HSA-Peru 1986: Carillo). While primary health care facilities appear to have been built in some relationship to population distribution, econometric analysis does not support this relationship (6).

In other words, neither population nor the distribution of primary health care facilities has any apparent impact on financial share variation among health regions. The quantitative

analysis suggests that other variables are more important in the distribution of primary health care facilities than these seemingly most obvious ones, but it is not apparent what those other variables might be.

The conclusion that MOH regionalization of health services has not improved the efficiency of primary health care delivery is supported by partial analyses of financial and services administration carried out by USAID contractors (see Moore, 1984; Clapp and Mayne *et al.*, 1985; Westinghouse, 1985; Gillespie, 1986). These analyses show that decision-making about resources allocation has remained concentrated at the central MOH level, and that there has been little improvement in administrative capabilities at the regional level.

USAID technical assistance for management improvement (see below) has largely been frustrated because of the instability of leadership at the regional level between 1983 and 1985. This instability can only have been aggravated under the new government, which has dismantled the health regions created by its predecessor and appears to have returned to the department-level administration of health services that had preceded the regionalization begun in 1982. It is not surprising, given this instability plus simultaneous reductions in MOH financial resources, that concern over wages and benefits among MOH administrators and health service staff has taken precedence over the need to increase the availability of medicines and other essential goods and services to primary health care facilities.

#### D. Foreign Aid Contributions

Over the period 1980-84, the MOH spent approximately US \$1.1 billion, for an average of \$220 million annually. Five major sources of foreign aid accounted for the equivalent of about six percent of this total. The Pan American Health Organization (PAHO), the World Bank, the Interamerican Development Bank (IDB), and the U.S. (USAID) and West German (GTZ) bi-lateral foreign aid programs together made available about U.S. \$70 million (Table 18). Two-thirds of this total represented low-interest loan funds with long repayment periods; the other one-third was in the form of grant funds. However, the largest loan -- US \$33.5 from the World Bank -- has remained largely unused, meaning that only about \$40 million in foreign aid was actually expended over the five-year period. This reduces the share of foreign aid funds in total MOH spending to an equivalent of less than four percent over the period under review.

Disbursement of foreign aid -- particularly of USAID funds

-- was slow in the initial years, but was accelerated from 1983 onward. Of the foreign aid actually used by the MOH (that is, excluding the World Bank loan), USAID contributions represented over 70 percent, for a total of \$29 million out of approximately \$40 million. Two-thirds of the USAID contribution has been in the form of loan funds, which have been used primarily for expenditures on construction, equipment, supplies, and training at the primary health care level. These funds show up in the MOH budget as revenue generated through borrowing (see above). The remaining one-third of the USAID contribution, in grant funds, has been used primarily to pay for technical assistance, as well as some supplies and training to complement the MOH loan-funded assistance program. Only those grant funds actually transferred to the MOH appear in its budget, under "transfers".

Both the PAHO and IDB grants represented funds transferred to the MOH. The GTZ grant, like those from USAID, was split between technical assistance and goods and services. Again, only transfers of funds, not contributions in kind, appear in the MOH budget as revenue. While no exact calculations of total financial contributions are possible, one can conclude that in reality these represented, on the average, no more than three percent of MOH revenue over the 1980-84 period. Technical assistance was devoted, to a considerable extent, to helping the MOH make efficient use of the direct contributions of financial and in-kind resources.

To supplement their direct contributions of resources, donor agencies (except PAHO) require the government of Peru to match these resources, at varying ratios, with domestically generated counterpart funds. The intent is to encourage the country to boost its own resources allocated for health care, rather than becoming dependent on foreign aid. To a large extent, however, the government's counterpart funds are generated through another source of foreign aid: revenues from the sale in Peru of U.S. food surpluses. These revenues provide a major source of Peruvian counterpart funding not only for USAID but also for World Bank and IDB contributions.

It is probably impossible to determine whether Peruvian counterpart payments in fact represent a net increase in domestic financing of MOH programs. Likewise, it is difficult to say whether or not foreign aid funds and in-kind transfers represent net additions to domestic financing of health services. To some extent, both counterpart funds and foreign aid contributions probably displace funds from ordinary sources, such as tax revenues and user payments, as well as domestic borrowing for health sector investment expenditures that might otherwise be allocated to the MOH by the Central Government. Considering, in addition, the difficulties imposed on the MOH by foreign aid administrative requirements, one cannot conclude that donors have

made a significant financial contribution to the health sector in Peru in recent years.

To discern any positive impact foreign aid may have had on the Peruvian health sector, one must assess how it has encouraged and enabled Peruvian authorities to implement significant changes in the orientation of MOH services. Certainly primary health care is now accorded financing priority, in that a separate budget category has been created to channel resources directly for this purpose. However, this category consists largely of investment expenditures (facilities, equipment, training) funded by foreign aid and counterpart monies. Operating expenditures -- particularly the wages and benefits of primary health care workers, plus medicine, maintenance, etc. -- are still encompassed within the respective budgetary line items of the Ministry. It is therefore impossible, on the basis of MOH budgetary records, to determine with any accuracy how much the Ministry spends on primary health care. The conclusion that 25 percent of total MOH spending, at best, has been devoted to PHC must remain a "ball park" estimate. This 25 percent figure in turn represents between six and seven percent of total health sector expenditures. Despite being unable to state exactly how much -- either in absolute terms or in proportion to total available health sector spending -- should be allocated to the 11 million Peruvians who depend heavily on the MOH for health care delivery, it seems clear that six or seven percent is not enough.

### III. PRIVATE HEALTH CARE EXPENDITURES

Expenditures for private health care in Peru, estimated separately for medical services and pharmaceuticals, totaled approximately US \$245 million in 1984, or about one-third of total health sector expenditures (Table 19). Some four million Peruvians obtain most of their health care, including pharmaceuticals, from private providers; private pharmaceutical purchases are actually much more widespread than this figure suggests, for most of the 13 million Peruvians with access to modern health care in either the public or private sectors probably purchase many of their pharmaceuticals directly from private pharmacies. The available information on pharmaceutical sales in Peru is analyzed in a companion report (HSA-Peru, 1986: Gereffi); this chapter focuses on the composition of estimated expenditures for -- and coverage by -- private providers of medical services (7).

Expenditures for private medical services in Peru flow through four different channels, only one of which funnels payments directly to providers: household and employer expenditures, or payments to private health care providers and pharmacies by households and by employers for the benefit of their employees. The other three channels represent indirect expenditures. These are risk-sharing mechanisms, which include private health insurance funds and other prepayment plans; cooperatives, which (although established for other economic reasons) sometimes pay for health services for their members from institutional revenues; and private voluntary organizations (PVOs), which provide financial support for primary health care and in most cases operate these programs directly (8).

There is no information on the composition of private sector health expenditures in Peru comparable to the public sector budgetary data available from the MOH and IPSS. Only the 1984 National Survey of Nutrition and Health (ENNSA) provides some useful data on household expenditures for health care by type of provider. Very little is known about direct employer financing of health care, or even about health care expenditures through risk-sharing mechanisms, except for what the exploratory research carried out under the HSA-Peru and a follow-up study (Solari et al., forthcoming) has identified. Information on health care expenditures by cooperatives and PVOs is limited to estimates by the authors of two earlier exploratory studies (Burns and Prentice, 1983; Keaty and Keaty, 1983). Due to the general dearth of information on private sector health care expenditures, this chapter is necessarily based largely on estimates (see Technical

Note). Nevertheless, it represents the first effort to estimate total private health care expenditures on a sector-wide, comparative basis (Table 19).

The analysis concludes that the private health sector accounts for about one-third of total health sector expenditures in Peru, equivalent to 1.5 percent of GDP in 1984 (see Tables 1 and 2). Supply-side information tends to support this figure as a reasonable estimate of the general magnitude of private health care expenditures. The private sector accounts for only 18 percent of all hospital beds and fewer than five percent of all primary health centers and posts (HSA-Peru 1986: Carrillo), but over half of all medical doctors apparently work in the private sector (HSA-Peru 1986: Locay) -- although it is not known how many of them are in active practice. The largest relative share of private sector expenditures goes for pharmaceuticals; the magnitude and composition of pharmaceutical sales is reliably documented in the HSA-Peru report by Gereffi (1986). An estimate of household expenditures for traditional health care (including monetary and in-kind transactions) is included here because of their importance, particularly in the rural areas, based on anthropological research findings (Davidson, 1983).

#### A. Direct Expenditures

In the urban areas of Peru, households typically choose between public and private health care, depending on their incomes, the severity of their self-perceived health care needs, their perception of the quality of care, and their access to organized private medical services. The higher the level of household income, the more likely it is that private care will be chosen. This preference is somewhat stronger for adult than for child care, especially at lower levels of income. Even relatively low-income urban households exhibit a preference for private care if it is more easily accessible, especially for adults, and while there is a tendency to seek emergency care in public sector hospitals, private practitioners are preferred for complicated treatment (HSA-Peru 1986: Gertler *et al.*). Underlying these preferences is the implicit judgement that private care is of higher quality than public care, and that public hospitals provide better ambulatory care than primary health care facilities. Moreover, for many specialized health needs the private sector provides care that is not available in the public sector.

According to the HSA-Peru study of household demand for ambulatory health care, the private sector accounted for 37 percent of all medical visits in Lima and for 62 percent in the

urban areas of the mountain states. However, the private sector accounted for 83 percent of all user fees reported as having been paid by urban households. The higher proportion of private sector medical visits in the urban sierra is attributed to the proportionately much lower supply there of public sector health care facilities (see HSA-Peru 1986: Carrillo). While the ENNSA survey does not provide data on total household expenditures for health care, it does permit simulations that suggest that, if fees were raised, households would spend more on health care without proportionately reducing their demand for health services. This includes private care, which -- while already substantially more expensive to the consumer -- would still be preferred, even at higher prices, because of its perceived higher quality.

Based on the ENNSA findings, complemented by earlier household surveys in Peru showing that urban households were spending between 2-4 percent of their disposable incomes on health care (Bustios, 1985), one can arrive at the estimates of direct household expenditures and coverage presented in Table 19. A total of 6.5 million individuals are estimated to use health services for which they pay directly; however, this total includes 500,000 urban residents with high incomes who are estimated to spend \$30 per capita for modern medical services, and six million very low income persons -- most of them rural residents -- who annually spend less than \$5 for traditional medical services. The remaining 3.5 million individuals not covered by public sector health services are assumed to be covered by modern medical services through various indirect payment mechanisms in the private sector, described below.

The four million Peruvians who, according to our estimates, rely primarily on modern health care provided by the private sector include the half million people mentioned above who pay for health care services directly, plus another three and a half million: those who are covered by various risk-sharing mechanisms (300,000), cooperatives (one million), and PVOs (2.2 million) The rationale behind these estimates is outlined in the following sections.

## **B. Risk-sharing Mechanisms**

A central feature of risk-sharing mechanisms in the health sector is that they require prepayment by or for all individuals covered, based on an actuarially-determined incidence of the need for health services among those covered and an administratively-determined limit of benefits. By thus spreading the risk of incurring health care expenditures, individuals (or families) are

protected from the full burden of the costs of illness, and particularly from the financial hardship that serious illness can impose. Properly administered, risk-sharing schemes can also be effective in containing the costs of health care and in containing the need for expensive curative care by providing for preventive care (9).

In Peru, private health insurance programs were started in the mid-1970s, and pre-paid funds managed by employers or providers are of even more recent origin. The emergence of these risk-sharing mechanisms in the private health sector and their current evolution is intricately bound up in the country's economic situation and its effect on publicly-financed health services provided through the MOH and IPSS. Private risk-sharing mechanisms have become attractive for a small minority of the population whose real income is relatively high, and also provide an alternative to a somewhat larger middle-class minority whose real incomes have probably declined over the past 10 years -- but for whom the poor quality of public sector services makes these no longer acceptable as the principal source of ambulatory health care.

There are thus two population segments involved in risk-sharing mechanisms, each with its own income level and expectations. A total of at most one million, or about five percent of the population, are in the high-income group who can afford and who demand relatively high-cost care; another three million (15 percent of the population) are middle-class Peruvians who cannot afford high cost-care but who still demand qualitatively good basic health services (10).

1. Private health insurance. In 1984, health insurance policy sales accounted for almost nine percent of total private insurance sales in Peru, up from less than two percent in 1977 (Table 20). The total value of health insurance sales, in real terms, tripled over this eight year period, and represented close to five percent of total estimated private health sector expenditures in 1984. Among 19 insurance companies selling health insurance, three -- El Pacifico, Panamericana and La Vitalicia -- shared 52 percent of the total market; none of the other 16 companies had a significant market share. Most private health insurance coverage is under group contracts, but the number of Peruvians who are beneficiaries is unknown. Approximately 215,000 individuals are covered by private health insurance in Lima, equivalent to between 3-4 percent of the capital's total population (Solari *et al.*, forthcoming). It appears that at present there is little if any private health insurance coverage anywhere else in Peru.

The emergence of a private health insurance market coincides with the onset of IPSS financial problems in the mid-seventies.

The resulting decline in the quality of medical care under IPSS caused large employers to begin seeking private sector alternatives, a tendency that was strengthened by two developments: the growth of unions, and the resulting enactment of social legislation to create employee welfare funds financed by employers and employees through wage-based contributions. These funds have been used, in part, to purchase health insurance with benefits supplementary to those provided by IPSS.

Private health insurance is sold in Lima primarily through brokers. As the cost of health insurance policies increased, companies began to consider the alternative of self-insurance, encouraged by brokers who began to compete as insurers with the very companies they represented. The result has been the fractionalization of what is in any case a very small health insurance market; there now exists a large and entirely uncoordinated variety of small risk-sharing arrangements, most of which are probably not actuarially sound (i.e., they do not generate sufficient revenue to equal the benefits to which those covered are entitled). This probably inhibits the efficient expansion of coverage for the time being.

Yet both the larger insurance companies and many of the employer-managed welfare funds have begun to use their market power to bargain with private sector health care providers to contain costs and even to share the risk burden. Since the number of medical doctors seeking to work in the private sector has grown substantially in recent years, many have been willing to contain costs and yet provide quality care in order to obtain the business offered by insurance companies, brokers, and large employers. The administrative burdens involved in dealing with these various insurance schemes have, in turn, led doctors to form group practices. A number of directors of such clinics, interviewed during our exploratory research, report that the need to deal with many different insurance mechanisms and to share the costs of medical facilities and equipment are the main motivations for the formation of their groups.

2. Providers' prepaid plans. The risk-sharing market was developed and is still dominated by insurance companies and insurance brokers working with large employers, but since 1982 prepaid plans offered by several large clinics have emerged as a second major private health sector financing alternative. These plans are partially modeled after health maintenance organizations (HMOs), although several earlier HMO failures in Peru have given the model a poor image among Peruvians in the highest income bracket. Since there are now many clinics and individual practitioners competing to provide private health services in Lima, an alternative that limits patients to the use of one particular clinic also meets resistance, particularly among the principal clientele of the leading clinics -- those

best able to pay for services directly.

These very clinics, nevertheless, are currently the leaders in the development of prepayment plans intended primarily for individual households rather than employer-managed welfare funds. Five providers, with an estimated total of 45,000 members, now offer prepaid family plans in Lima. The subscription fees and services provided under these plans suggest that their sponsors are trying to attract middle-income families. The principal sources of revenue for these clinics, however, remain the fees for services paid directly by individuals or by insurance companies, brokers as insurers, or company welfare plans (see Solari *et al.*, forthcoming, for a detailed analysis of these plans).

If one takes the ENNSA finding that 37 percent of the Lima residents who consulted medical practitioners in 1984 chose private sector care, then the absolute size of this particular market is approximately two million. The risk-sharing mechanisms briefly described above provide coverage for approximately 300,000 individuals, almost exclusively in Lima, broken down as follows:

Private health insurance	215,000
Employer-provided health services	40,000
Provider-offered prepayment plans	45,000
Total	<u>300,000</u>

This leaves a substantial 1.7 million inhabitants who, it must be assumed, either pay for private health services directly or are covered through cooperatives or PVOs (see below). This figure also represents the outer limits of potential market expansion for private sector risk-sharing mechanisms in the nation's capital. A doubling of current coverage, however, is a reasonable possibility if risk-sharing mechanisms can succeed at containing costs while providing health care that is perceived to be of substantially higher quality than MOH or IPSS services.

It is important to remember that the ENNSA data pertain only to the demand for ambulatory health care, while the coverage provided by the various risk-sharing alternatives includes both ambulatory and in-patient hospital care. If half of this population also demands hospital care, then the 18 percent of all hospital beds that are operated by the private sector would be fully utilized. However, these hospital services may be too expensive for many of those who would prefer private care but for whom public sector hospitals are a much less expensive alternative for in-patient care. Of this population, those who are employed would, in most cases, also be covered by IPSS, and would thus use the institute's hospitals; those who are not

covered by IPSS, including dependents of workers covered by IPSS, would have to use MOH hospitals. Overall, while one-third of the population of Lima uses private ambulatory care, fewer than one-sixth use private hospitals. This supports the observation made in Chapter II that a substantial number of individuals who are not among the MOH target population -- the medically indigent -- nevertheless use MOH hospital in-patient services. This population could afford private hospital in-patient care only if they were covered by a risk-sharing scheme.

### C. Cooperatives and Private Voluntary Organizations

Preceding the emergence of a risk-sharing market in the private health sector in the mid-seventies, Peru had a history of private health services provided through indigenously-financed cooperatives, internationally-supported private voluntary organizations and indigenous charities (beneficiencias). The oldest of these are the beneficiencias, which were responsible for financing the construction of many hospitals during the 1950s and '60s as well as for operating them; however, these facilities were transferred to the MOH in the early 1970s, and have been a major financial burden on the public sector ever since.

Between them, the cooperatives and PVOs spend close to US \$50 million annually on health services, or about seven percent of total health sector expenditures. For their expenditure, these institutions provide medical services for about 3.2 million Peruvians, equivalent to about 25 percent of total health sector coverage with modern health care (11). They are therefore a major element in the Peruvian effort to provide basic health services at reasonable cost, yet their economic viability may have been undermined in the recent severe recession.

1. Cooperatives. The development of cooperatives was strongly encouraged between 1968 and 1974 by the first military regime. Many of these organizations were created by fiat from the top down rather than resulting from grassroots initiatives, and they depended on the government for much of their financial support. The civilian government that assumed power in 1980 distanced itself from the cooperatives, requiring them to become entirely private organizations. This policy, together with the effect of the severe economic recession in 1982-83, has caused many cooperatives to disappear or to restrict their activities to their main economic objectives, and thus to eliminate the health services and other welfare benefits that some of them had previously offered.

Of 2,000 cooperatives identified in a 1981 census, 172

reported providing some form of health services to their memberships. In the urban areas, savings and loan cooperatives are most likely to offer such services, while a number of agricultural cooperatives provide some health services in rural Peru. The 172 cooperatives referred to in the 1981 census had a total membership of 446,000, which -- when multiplied by an average of four to five members per family -- led MSH researchers to estimate that two million people were eligible for health services provided by these cooperatives (Bates and Prentice, 1983). Based on interviews with directors of 40 cooperatives, which in 1982 reported some 330,000 medical consultations and an expenditure on health services of about US \$440,000, the MSH researchers estimated a total expenditure of US \$2 million. Since the cooperatives they analyzed had relatively the most active health care programs, it seems realistic to estimate that an additional 60 cooperatives provide equivalent health services. This lowers the coverage estimate to one million members and dependents.

Health services provided by cooperatives in the urban areas primarily benefit middle-income residents who belong to savings and loan associations. Moreover, the health benefits of these cooperatives are largely intended for dependents, since heads of households are typically covered through IPSS. In Lima, this segment of the population may account for about 15 percent of total private sector demand, or 300,000 individuals. Other urban areas may account for an additional coverage of about 600,000 through cooperatives.

Agricultural cooperatives, which accounted for more than half of all cooperatives providing health services in 1982 (91 of 172), had smaller memberships, on average, than savings and loan cooperatives. Their financial resources, largely derived from levies on sales of members' products, have always been very limited; moreover, there is almost no coordination or joint action by agricultural cooperatives, meaning they have no market power. Under these conditions, their health services have been restricted to some ambulatory health care and purchases of medicines for their members. The only exceptions are several sugar cooperatives, which provide hospital services. Total health care expenditures by agricultural cooperatives may be about \$US 1 million annually, and their coverage is probably about 100,000 people. Under its new leadership, IPSS is currently negotiating with some of the agricultural cooperatives to provide health care through the Institute in return for prepaid contributions from the cooperatives' revenues.

2. Private voluntary organizations. While cooperatives are indigenous entities receiving almost no external support, most PVOs that provide health care were organized by international religious and charitable organizations. Another difference

between the two kinds of organizations is that cooperatives charge members little or nothing in user fees, while most PVOs charge patients substantial user fees (12). The MSH study of PVOs identified a total of 270 such organizations, most of them working in cooperation with the MOH (Keaty and Keaty, 1983). It should be recalled that for 1982 (the data-base year for the MSH study) MOH budgetary data still show substantial transfers of funds to the PVOs (approximately US \$20 million), but that these had already started their precipitous decline in 1983. It is not known whether or to what extent PVOs were able to offset the decline in MOH support for their operations, either from increased international donations or through increased user fee revenues. Many also had medical doctors and nurses on the MOH payroll assigned to them, and since the MOH personnel budget did not decline during the recent recession, it is possible that this in-kind contribution by the MOH to the PVOs continues.

The MSH researchers estimated that PVO expenditures on health care in 1982 were US \$2.8 million, which is probably a significant underestimation of their total cost. Population coverage was more reasonably estimated at 2.2 million. Close to 60 percent of both expenditures and coverage were in the coastal cities, thus overlapping, in both areas, with the MOH; only in rural Peru -- the mountains and jungles -- is PVO coverage likely to be supplementary rather than complementary to MOH coverage. In the cities, PVOs probably serve a lower-middle income segment of the population rather than the medically indigent, inasmuch as the user fees they charge require that families have at least a lower-middle income. It is probably safe to conclude that most PVOs operate at the borderline between the public and private health sectors in the coastal urban areas, and have average unit costs similar to those estimated in Ch. II for the MOH -- US \$10. If this assumption is correct, then the health care expenditures of PVOs total about US \$22 million annually (13).

Average unit costs of health services provided through urban cooperatives may be relatively high because their members expect care in clinics or hospitals, some of which are operated by the cooperative themselves. PVOs may have lower unit costs because they emphasize primary health care, in most cases without providing hospital services.

The socio-economic coverage of cooperatives and PVOs in the urban areas probably consists largely of middle to lower-middle income segments of the population that can afford to spend some of their income for modern health care, and who expect the quality of care that they associate with medical doctors and drugs. The population served by both types of organizations also probably includes a large proportion of households whose heads may be covered by IPSS but whose dependents are not.

#### D. Summary of Expenditures and Coverage

Total private sector coverage by -- and expenditures for -- modern medical services for four million Peruvians thus consist of the following major components (not including purchases of pharmaceuticals):

	<u>Coverage</u> (thousands)	<u>Expenditures</u> (millions of US \$)
Direct household expenditures for private medical services	500	15.0
Risk-sharing mechanisms	215	10.75
Employer and provider plans	85	4.25
Cooperatives	1,000	23.0
Private voluntary organizations	2,000	22.0
	-----	-----
Total	4,000	75.0

In addition, household expenditures for traditional health care by six million very poor Peruvians who are beyond the current reach of MOH services are estimated at US \$25 million. Finally, private sector pharmaceutical sales totalling US \$145 million must be added, in order to arrive at the private health sector expenditure total of US \$245 shown in Table 1.

Lima represents about two-thirds of total private sector demand for modern health care in the urban areas of Peru. In Lima, a large share of private sector demand is satisfied through institutional payment mechanisms, and a relatively small share consists of direct household purchases of medical services. Cooperatives and PVOs provide coverage to a substantial proportion of the population, both in Lima and in other urban areas, as well as in many smaller towns and villages. Risk-sharing mechanisms are in evidence only in Lima, as are provider-organized family plans. Only mining companies provide some directly administered health care outside Lima.

#### IV. CONCLUSIONS

This report, together with its companion report on coverage and costs of medical care under IPSS (HSA-Peru, 1986: Mesa-Lago), represents the first comprehensive analysis of health sector expenditures and coverage in Peru. One can conclude that total health sector expenditures are at a level compatible with the country's level of economic development, but that a third of the population has no financial and/or geographical access to modern health care. Still, even very poor households make expenditures for traditional health services, suggesting a self-perceived need and thus a potential demand for modern health care (see Table 21).

There is an inherent policy conflict, however, between the economically stronger urban areas and the under-developed rural areas of Peru. Both need and demand more and better health care, but while health sector leaders have paid lip-service to the priority of primary health care during the past 10 years, they have continued to allocate the large majority of financial, physical, and human resources to secondary and tertiary level care in the large urban centers. Donors of foreign aid have supported the expansion of primary health care, but the Peruvian government has not been able or willing to reorient its own spending priorities to match its policy priorities in the health sector.

This report reaches the following major conclusions:

1. Total health sector expenditures in 1984 were US \$732 million, equivalent to 4.5 percent of GDP, a figure that includes expenditures through the Ministry of Health, the medical care programs of the Peruvian Institute of Social Security and other public sector entities, as well as private sector expenditures by households, employers, cooperatives, and private voluntary organizations. This level of expenditures is comparable to what other countries at Peru's level of per capita income spend on health care (Zschock, 1986). Peruvians, however, finance a health services system that is highly inefficient and inequitable. Furthermore, while total expenditures remained constant in relative terms, they declined sharply in absolute terms between 1980-84 -- years in which Peru weathered a deep economic recession. Private health care expenditures, however, increased during this period, to some extent offsetting the decline in public sector spending; they now account for about one-third of total health sector expenditures.

2. Although in 1984 the total population of Peru was

estimated at about 19.0 million, divided into 12.6 million urban and 6.4 million rural residents (HSA-Peru 1986: Gomez), for purposes of this study it is assumed that 10 million people live in towns and cities of sufficient size to be considered urban centers, and that nine million live in smaller towns and villages and in the countryside, where they have all the usual characteristics of rural dwellers. This urban-rural distribution of the population provides a more appropriate basis for estimating the distribution of health care expenditures and population coverage, both sectorially and on a per capita basis (14). The report concludes that the public health sector currently provides nine million Peruvians with modern health care, while the private sector covers four million.

3. Population coverage, an imprecise term, is used here to mean financial and/or geographical accessibility to medical services and pharmaceuticals. In this sense, the Ministry of Health, which by law is responsible for the health care of all medically indigent Peruvians, provided coverage (in 1984) for about five million people -- two million in towns and cities and three million in rural areas. IPSS covered 3.5 million inhabitants, all in urban areas, and other public services for specified population groups, such as the Armed Forces and Police, covered half a million, also in the urban areas. This adds up to a combined public sector coverage of six million urban and three million rural residents, leaving an estimated six million medically indigent Peruvians without coverage -- one million in urban and five million in rural areas.

4. Secondary and tertiary health services absorb about three-fourths of MOH financing. The Ministry's primary health care program accounts for the remaining one-fourth, and is being provided at about US \$10 per capita of estimated coverage. This is probably insufficient. A large proportion of primary health care facilities are poorly maintained, inadequately staffed, and lacking in essential medicines. Peruvians, including the medically indigent, must buy most of their medicines from private pharmacies, at an additional average per capita cost of US \$11 annually for those covered by modern medical services.

5. Despite declining financial resources, MOH expenditures for personnel and benefits, including pensions, increased over the 1980-84 period. These expenditures have therefore become an ever larger proportion of total expenditures -- to the detriment of facilities maintenance and pharmaceuticals, whose shares of total MOH expenditures have shrunk to such low levels that the delivery of services, particularly at the primary care level, is now seriously deficient even for the currently covered population. Quantitative analysis indicates that MOH financial allocations are largely determined by the distribution of secondary and tertiary facilities, rather than by population

distribution or even the location of primary health care facilities. Thus, the relatively equitable distribution (but insufficient total number) of health centers and posts is undermined by serious shortages of operating support.

6. The attempts of the MOH to regionalize the administration of its services in order to make them more accessible to its target population have not been effective. The regionalization program has undergone repeated changes over the past five years, yet there is still no effective delegation of responsibility and authority, particularly in the area of financial decision-making. To a large extent, the Ministry's difficulties in administering its financial resources are beyond its power to resolve, since the allocation of resources is tightly controlled by the Ministry of Finance and the Treasury Department. Nevertheless, limited capabilities for financial management within the MOH put it at a disadvantage in comparison with other government agencies that are more capably managed.

7. Health services provided through IPSS totaled US \$240 million in 1984, equivalent to 33 percent of total health sector expenditures and almost US \$70 per capita. IPSS coverage is more expensive than that of MOH because of its even greater reliance on hospital care and its higher cost structure (see HSA-Peru 1986: Mesa-Lago). The quality of MOH and IPSS health services has declined in recent years, as their expenditures have been sharply reduced during Peru's economic recession, leading many Peruvians to seek private health care alternatives.

8. While the major public sector organizations that provide health care -- the MOH and IPSS -- are fairly homogeneous systems, the private sector is very heterogeneous and has little organizational structure. On the supply side, it consists of many individual practitioners but a relatively small number of clinics and hospitals, all providing medical attention on a fee-for-service basis. On the demand side, households, employer- and provider-organized health plans, risk-sharing mechanisms, cooperatives, and private voluntary organizations all account for sizeable shares of total private health care expenditures. Among these, the relative importance of risk-sharing mechanisms and provider-organized health plans seems to be rising, while the relative expenditure shares of cooperatives and PVOs may have been shrinking during the country's economic recession.

9. The private health sector, moreover, includes expenditures for both modern and traditional health care. Private sector expenditures are made by most households, ranging from the highest to the lowest income levels of the population, and by many employers for their workers. Households and employers make expenditures for health care either directly or indirectly through various risk-sharing mechanisms. Many cooperatives and

private voluntary organizations are also important participants in the financing and delivery of private vector health services. The private health care sector, thus defined, covers the balance of 10 million Peruvians who are not covered by public sector institutions: four million urban and six million rural residents. Viewed another way, three million urban and one million rural residents make private expenditures for modern health care, and one million urban and five million rural inhabitants purchase traditional health services.

10. Finally, expenditures for pharmaceuticals should be regarded as a separate category of expenditures in the private sector, distinguished from expenditures through both public and private sector providers of medical services. Only IPSS and "other" public sector programs offer their beneficiaries free drugs in any significant quantities. In the private sector, only hospitals, large clinics, and health services operated directly by employers provide pharmaceuticals as an integral part of the care they provide for their patients. That most Peruvian households must buy much or all of their medicine from private pharmacies is evident from reliable data showing that almost three-fourths of all pharmaceutical sales take place in the private sector, even though modern medical services in the private sector account for only 30 percent of total health care coverage.

## FOOTNOTES

1. All macro-economic data, including GDP, GDP deflator, and exchange rates, are taken from Central Bank of Peru sources, in part through the courtesy of Data Resources, Inc., of Lexington, Mass. The following are the statistics of GDP and Central Government (GOVT) expenditures used in this analysis (in billions of 1980 soles):

	1980	1981	1982	1983	1984
GDP	4,968.6	5,178.7	5,229.6	4,504.8	4,697.9
GOVT	1,370.0	1,386.5	1,344.2	1,302.5	1,385.4

The exchange rate used for converting constant soles into dollars and vice versa is 289:1, which is acceptable inasmuch as the GDP deflator and rate of devaluation were virtually identical over the five-year period (see also Footnote 2).

2. In Standard National Accounts, Central Government expenditures include those of the executive, legislative and judicial agencies of the national government, but not the expenditures of semi-autonomous government agencies and para-statal enterprises. Central Government expenditures are thus the appropriate frame of reference for spending by the Ministry of Health but not by Social Security institutions, since the latter are semi-autonomous agencies. An adjustment has been made for this report, as explained below in Note 3.

3. In Standard National Accounts, social security expenditures are not included in what is referred to as "Central Government." In order to compare Ministry of Health and Social Security expenditures for medical care, the Central Government total has been expanded here by the total expenditures of the Peruvian Social Security Institute.

4. The corresponding financial analysis of medical care under Social Security is covered in a separate report (HSA-Peru, 1986: Mesa-Lago).

5. An econometric regression of the three independent variables (the shares of population, hospital beds, and health centers/posts) on the dependent variable (financial share) shows population to have virtually no impact on the distribution of expenditures (see Table 17). Hospital beds, on the other hand, strongly influence financial allocations by region. The regression results are:

$$\begin{aligned}
 \text{FINSHARE} &= \text{Constant } (-309.348) + \text{POPSHARE } (0.007) \\
 &\quad (t= -0.1) \qquad\qquad\qquad (t= 1.8) \\
 &\quad + \text{BEDSHARE } (27.361) - \text{HCPSHARE } (16.271) \\
 &\quad 2 \qquad\qquad\qquad (t= 12.8) \qquad\qquad\qquad (t= -0.6) \\
 R &= 0.9
 \end{aligned}$$

6. The regression results are:

$$\begin{aligned}
 \text{HCPSHARE} &= \text{Constant } (85.221) - \text{FINSHARE } (-0.0) + \text{POPSHARE } (0.0) \\
 &\quad 2 \qquad\qquad\qquad (t= 8.0) \qquad\qquad\qquad (t= -0.6) \qquad\qquad\qquad (t= 1.8) \\
 R &= 0.6
 \end{aligned}$$

7. The Technical Note explains in detail how these estimates were arrived at. See Table 21 for a composite of estimated expenditures and coverage for the health sector as a whole.

8. One might want to consider community participation in health as yet another private health sector component; however, communal activities typically involve expenditures directly contributed by households or channelled through cooperatives or PVOs (see HSA-Peru, Davidson 1986).

9. Risk-sharing mechanisms in the private health sector are limited, however, by the size of the population with sufficient income to pay premiums on a regular basis and to make the (usually required) co-payments when health services are needed. Popular participation in risk-sharing also depends on knowledge and acceptance of the basic principles of such mechanisms, and on the capability of administrative and medical staffs to manage and use such mechanisms responsibly and efficiently. The availability of publicly financed health services, such as MOH and IPSS hospital and ambulatory care, also limits the demand for and thus the economic viability of private health insurance.

10. The estimate that about four million residents represent the size of the market for private health care in Peru is supported by the ENNSA finding that almost four out of 10 ambulatory visits in Lima reported in that survey involved private care. Moreover, the HSA-study by Gertler *et. al.* (1986) estimated that this proportion would be higher if the average cost of consultation were lower, as it might be under a properly-managed risk-sharing mechanism. On the other hand, if the perceived quality of public health services were to improve, this would dampen demand for private care.

11. Coverage provided by cooperatives and PVOs has been estimated at close to five million (MSH 1983); however, this estimate may be exaggerated. It seems more reasonable to suggest that a little over three million Peruvians have access to health services financed by -- and in many cases directly provided by -- these organizations.

12. Foreign donor support for health care in Peru has included

funding and technical assistance for PVOs, apparently on the assumption that these organizations provide an alternative to MOH services for the medically indigent. It should be noted, however, that these organizations cover a lower-middle-income segment of the population rather than the medically indigent.

13. The calculations above may involve some double-counting of expenditures by the MOH and PVOs, considering that MOH transfer payments to the PVOs in 1982 were close to the total annual estimated expenditures by private voluntary organizations. Questions about how PVOs have been financed, how much they spend on health care, and for whom they provide services require further research and analysis.

14. The definition of "urban" in census data covers villages of as few as 1500 inhabitants, which is unrealistic if one is interested in differentiating between typical urban and typical rural communities. Most population concentrations of up to 10-15,000 inhabitants are primarily rural in their economic and social characteristics. This is as true for Peru as it is for most developing countries.

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TABLE 1A

SECTORIAL COMPOSITION OF HEALTH SECTOR EXPENDITURES, 1980 - 84  
(totals in billions of 1980 soles)

Subsector	1980		1981		1982		1983		1984	
	Total	%								
Ministry of Health	67.2	32.0	68.7	29.3	61.5	26.9	58.1	28.3	58.0	27.4
Social Security	67.3	32.1	87.9	37.4	87.1	38.0	66.3	32.3	69.5	32.9
Other, public	14.7	7.0	15.3	6.5	14.9	6.5	13.0	6.3	13.2	6.2
Subtotal, public	149.2	71.1	171.9	73.2	163.5	71.4	137.4	66.9	140.7	66.5
Private sector	60.5	28.9	62.9	26.8	65.5	28.6	68.1	33.1	70.8	33.5
Health sector total	209.7	100.0	234.8	100.0	229.0	100.0	205.5	100.0	211.5	100.0

Note: Ministry of Health and Institute of Social Security data were provided by these organizations' budget offices with totals in soles calculated using Central Bank deflator. Estimates of private sector health care expenditures were taken from Table 19, below. Social Security expenditures for medical care were taken from HSA-Peru, 1986: Mesa Lago, Table 13, and converted to constant soles. However, the expenditure total for 1984 has been increased to correct for a probable underestimate in this source.

TABLE 1B  
 SECTORIAL COMPOSITION OF HEALTH SECTOR EXPENDITURES, 1980 - 84  
 (totals in millions of U.S. dollars)

Subsector	1980		1981		1982		1983		1984	
	Total	%								
Ministry of Health	232.5	32.0	237.7	29.3	212.8	26.9	201.0	28.3	200.7	27.4
Social Security	232.9	32.1	304.2	37.4	301.4	38.0	229.4	32.3	240.5	32.9
Other, public	50.9	7.0	52.9	6.5	51.6	6.5	45.0	6.3	45.7	6.2
Subtotal, public	516.3	71.1	594.8	73.2	565.7	71.4	475.4	66.9	486.9	66.5
Private sector	209.3	28.9	217.6	26.8	226.6	28.6	235.6	33.1	245.0	33.5
Health sector total	725.6	100.0	812.5	100.0	792.4	100.0	711.1	100.0	731.9	100.0

Note: Ministry of Health and Institute of Social Security data were provided by these organizations' budget offices with totals in soles calculated using Central Bank deflator. Estimates of private sector health care expenditures were taken from Table 19, below. Social Security expenditures for medical care were taken from HSA-Peru, 1986: Mesa Lago, Table 13, and converted to constant soles. However, the expenditure total for 1984 has been increased to correct for a probable underestimate in this source.

TABLE 2

HEALTH SECTOR EXPENDITURES IN RELATION TO GDP  
AND CENTRAL GOVERNMENT EXPENDITURES, 1980 - 84  
(in percentages)

	1980	1981	1982	1983	1984
Growth in GDP	3.00	4.23	0.98	-13.90	4.29
.....					
MDH share of GDP	1.35	1.33	1.18	1.29	1.23
Social Security share of GDP	1.35	1.70	1.66	1.47	1.50
MDH and Social Security share of GDP	2.70	3.03	2.84	2.76	2.73
Private health care share of GDP	1.22	1.22	1.26	1.51	1.51
Total health sector* share of GDP	4.22	4.53	4.38	4.56	4.50
.....					
Central Government** share of GDP	27.57	26.77	25.70	28.91	29.49
.....					
MDH share of Central Government	4.91	4.95	4.58	4.46	4.19
Soc. Sec. share of Central Government	4.91	6.34	6.47	5.09	5.02
MDH and Social Security share of Central Government	9.82	11.29	11.05	9.55	9.21

MDH and Social Security shares based on data from respective budget offices.

\* Including small share of "other" public sector health expenditures shown in Table 1.

\*\* Social Security expenditures are included here for reasons of consistency; ordinarily they are not included in Central Government expenditures.

TABLE 3  
MDH SOURCES OF REVENUE, 1980 - 84

(in billions of current soles)

	1980		1981		1982		1983		1984	
	Total	%								
All Sources	49.0	100.0	83.2	100.0	166.3	100.0	341.5	100.0	725.6	100.0
Tax Revenue	43.6	89.0	75.5	90.7	147.2	88.5	301.0	88.2	628.9	86.7
User Charges	3.3	6.7	5.2	6.3	13.7	8.2	24.2	7.1	52.1	7.2
Borrowing	1.9	3.9	2.3	2.8	2.4	1.5	9.7	2.8	33.4	4.6
Transfers	0.2	0.4	0.2	0.2	3.0	1.8	6.6	1.9	11.2	1.5

(in billions of 1980 soles)

All Sources	49.0	100.0	50.8	100.0	61.5	100.0	58.1	100.0	58.0	100.0
Tax Revenue	43.6	89.0	46.0	90.7	54.4	88.5	51.2	88.2	50.3	86.7
User Charges	3.3	6.7	3.2	6.3	5.1	8.2	4.1	7.1	4.1	7.2
Borrowing	1.9	3.9	1.5	2.8	0.9	1.5	1.7	2.8	2.7	4.6
Transfers	0.2	0.4	0.1	0.2	1.1	1.8	1.1	1.9	0.9	1.5

Data from MDH budget office records.

\* Sources of revenues for final expenditures.

Note: Data for 1980 and 1981 do not include revenues expended for health by the ORDES (state-level development agencies), whose sources are not known.

TABLE 4  
 MOH EXPENDITURES BY SOURCE AND PROGRAM, 1980 - 84  
 (in millions of 1980 soles)

	CENTRAL LEVEL																															
	Central Administration		Training		Physical Facilities		Nat'l Inst. of Health		Nutrition		Environmental Programs		Transmissible Diseases		Primary Health Care		SUBTOTAL		HEALTH REGIONS		MOH TOTALS											
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%										
1980, total	9,349	100.0	----- 15,132 -----																		24,481	100.0	42,745	100.0	67,226	100.0						
Tax revenue	9,021	96.5																														
User charges	10	0.1																														
Borrowing	253	2.7																														
Transfers	65	0.7																														
1981, total	8,161	100.0	----- 13,552 -----																		21,713	100.0	46,972	100.0	68,685	100.0						
Tax revenue	7,835	96.0																														
User charges	1	0.0																														
Borrowing	310	3.8																														
Transfers	16	0.2																														
1982, total	4,612	100.0	84	100.0	4,093	100.0	729	100.0	3,475	100.0	932	100.0	0	0	0	0	13,925	100.0	47,612	100.0	61,537	100.0										
Tax revenue	4,160	90.2	83	98.2	2,771	67.7	569	78.0	2,686	83.0	599	64.2	0	0	0	0	11,067	79.5	43,386	91.1	54,453	88.5										
User charges	224	4.9	1	1.8	14	0.4	161	22.0	589	17.0	33	3.5	0	0	0	0	1,023	7.3	4,050	8.5	5,073	8.2										
Borrowing	134	2.9	0	0.0	696	17.0	0	0.0	0	0.0	77	8.3	0	0	0	0	907	6.5	0	0.0	907	1.5										
Transfers	94	2.0	0	0.0	611	14.9	0	0.0	0	0.0	224	24.0	0	0	0	0	929	6.7	175	0.4	1,104	1.8										
1983, total	4,619	100.0	0	0	2,814	100.0	776	100.0	3,515	100.0	1,053	100.0	1,226	100.0	0	0	14,002	100.0	44,058	100.0	58,060	100.0										
Tax revenue	4,230	91.6	0	0	1,490	53.0	539	69.4	3,140	89.3	439	41.7	800	65.9	0	0	10,644	76.0	40,533	92.0	51,177	88.2										
User charges	139	3.0	0	0	3	0.1	237	30.6	376	10.7	48	4.6	0	0.0	0	0	803	5.7	3,307	7.5	4,110	7.1										
Borrowing	152	3.3	0	0	900	34.8	0	0.0	0	0.0	279	26.5	239	19.5	0	0	1,649	11.8	0	0.0	1,649	2.8										
Transfers	90	2.1	0	0	341	12.1	0	0.0	0	0.0	287	27.2	179	14.6	0	0	905	6.5	218	0.5	1,124	1.9										
1984, total	5,162	100.0	61	100.0	4,295	100.0	711	100.0	2,176	100.0	1,129	100.0	926	100.0	1,406	100.0	15,865	100.0	42,179	100.0	58,045	100.0										
Tax revenue	5,002	96.9	57	93.9	2,560	59.6	553	77.8	1,935	88.9	457	40.5	926	100.0	236	16.8	11,727	73.9	38,582	91.5	50,309	86.7										
User charges	140	2.7	4	6.1	4	0.1	156	21.9	240	11.1	36	3.2	0	0.0	0	0.0	581	3.7	3,590	8.5	4,171	7.2										
Borrowing	0	0.0	0	0.0	1,707	39.8	0	0.0	0	0.0	396	35.1	0	0.0	570	40.6	2,674	16.9	0	0.0	2,674	4.6										
Transfers	11	0.2	0	0.0	23	0.5	2	0.3	0	0.0	240	21.2	0	0.0	600	42.6	876	5.5	7	0.0	883	1.5										

Note: Data from MOH budget office records, except that 1980 and 1981 health region expenditures include funds provided through the ORDES which are not included in MOH records. In later years, all regional funds came from MOH directly.

TABLE 5

DISTRIBUTION OF MOH EXPENDITURES BETWEEN CENTRAL AND REGIONAL PROGRAMS, 1982 - 84  
(in millions of 1980 soles)

Category	1980		1981		1982		1983		1984	
	Total	%								
MOH Total	67,226	100.0	68,685	100.0	61,537	100.0	58,060	100.0	58,045	100.0
MOH Central	24,481	36.4	21,713	31.6	13,925	22.6	14,002	24.1	15,065	27.3
Central Admin.	9,349	13.9	8,161	11.9	4,612	7.5	4,619	8.0	5,162	8.9
Training					84	0.1	0	0.0	61	0.1
Physical facilities					4,093	6.7	2,814	4.8	4,295	7.4
National Inst. of Health					729	1.2	776	1.3	711	1.2
Nutrition	15,132	22.5	13,552	19.7	3,475	5.6	3,515	6.1	2,176	3.7
Environmental programs					932	1.5	1,053	1.8	1,129	1.9
Transmissible diseases					0	0.0	1,226	2.1	926	1.6
Primary health care									1,406	2.4
Health Regions	42,745	63.6	46,972	68.4	47,612	77.4	44,058	75.9	42,179	72.7

Note: Data from MOH budget office records, except that 1980 and 1981 health region expenditures include funds provided through the OREDES which are not included in MOH records. In later years, all regional funds came from MOH directly. Prior to 1982, MOH centrally-administered programs were not separately identified in budget documents; this practice started in 1982 as part of a government-wide change in accounting. The Primary Health Care program was introduced as a separate budget category only in 1984.

TABLE 6

MOH RECURRENT AND CAPITAL EXPENDITURES BY CENTRAL AND REGIONAL LEVELS, 1980 - 84  
(in millions of 1980 soles)

Category	1980		1981		1982		1983		1984	
	Total	%								
Total	67,266	100.0	68,685	100.0	61,537	100.0	58,059	100.0	58,044	100.0
Central level	24,481	36.4	21,713	31.6	13,926	22.6	14,001	24.1	15,952	27.5
Regional level	42,745	63.5	46,972	68.4	47,611	77.4	44,058	75.9	42,092	72.5
Recurrent	57,823	86.0	61,626	89.7	56,024	91.0	54,638	94.1	52,001	89.6
Central level	15,732	27.2	14,821	24.0	9,287	16.6	10,896	19.9	10,119	19.5
Regional level	42,091	72.8	46,807	76.0	46,737	83.4	43,742	80.1	41,882	80.5
Capital	9,403	14.0	7,057	10.3	5,513	9.0	3,421	5.9	6,043	10.4
Central level	8,749	93.0	6,892	97.7	4,639	84.1	3,105	90.8	5,833	96.5
Regional level	654	7.0	165	2.3	874	15.9	316	9.2	210	3.5

Data from MOH budget office records.

Note: Central and regional level percentages are percentages of category totals.

TABLE 7

COMPOSITION OF MDH CENTRAL EXPENDITURES BY PROGRAM AND CATEGORY, 1984  
(vertical percentages)

Category	CENTRAL MDH PROGRAMS							
	Central Admin.	Training	Physical Facilities	Nat'l Inst. of Health	Nutrition	Environmental Programs	Transmissible Diseases	Primary Health Care
Recurrent Expenditure:								
Wages & benefits	19.87	76.20	8.26	53.83	36.89	16.86	8.55	4.89
Goods	2.73	4.63	4.79	14.82	52.88	1.57	64.38	3.82
Services	3.21	5.57	4.12	8.05	18.21	2.65	27.87	1.18
Transfers	13.27	11.83	0.00	0.83	0.82	0.00	0.00	0.25
Pensions	59.99	0.00	0.00	17.11	0.00	0.00	0.00	0.00
Capital Expenditure:								
Studies	0.00	0.00	4.19	0.00	0.00	0.00	0.00	1.32
Construction	0.00	0.00	32.58	0.40	0.00	77.33	0.00	74.59
Equipment	0.00	1.77	46.14	6.58	0.00	1.59	0.00	15.63
Other	0.93	0.00	0.00	0.06	0.00	0.00	0.00	0.00
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Data from MDH budget office records.

TABLE B

MOH TOTAL RECURRENT EXPENDITURES BY CATEGORY, 1980 - 84  
(in millions of 1980 soles)

Category	1980		1981		1982		1983		1984	
	Total	%								
Total recurrent expenditures	57,823	100.0	61,628	100.0	56,024	100.0	54,638	100.0	52,091	100.0
Wages & benefits	33,258	57.5	36,109	58.6	39,207	70.0	38,546	70.6	36,217	69.7
Goods	13,866	24.0	15,269	24.8	11,874	21.2	9,901	18.1	8,654	16.6
Services	1,878	3.3	2,373	3.9	1,900	3.5	2,622	4.8	1,880	3.6
Transfers	6387	11.0	5576	9.0	918	1.6	674	1.2	727	1.4
Pensions	2,434	4.2	2,381	3.7	2,045	3.7	2,895	5.3	4,523	8.7

Data from MOH budget office records.

TABLE 9

MDH TOTAL CAPITAL EXPENDITURES BY CATEGORY, 1980 - 84  
(in millions of 1980 soles)

Category	1980		1981		1982		1983		1984	
	Total	%								
Total capital expenditures	9,483	100.0	7,057	100.0	5,513	100.0	3,421	100.0	6,043	100.0
Studies	256	2.7	253	3.6	195	3.5	47	1.4	199	3.3
Construction	7,940	84.4	5,754	81.5	4,549	82.5	2,199	64.3	3,439	56.9
Equipment	800	8.6	864	12.3	769	14.0	1,150	33.6	2,357	39.0
Other	399	4.3	186	2.6	0	0.0	25	0.7	48	0.8

Data from MDH budget office records.

TABLE 10

MDH RECURRENT EXPENDITURES BY CATEGORY  
CENTRAL LEVEL, 1980 - 84  
(in millions of 1980 soles)

Category	1980		1981		1982		1983		1984	
	Total	%	Total	%	Total	%	Total	%	Total	%
Total	15,732	100.0	14,821	100.0	9,287	100.0	10,896	100.0	10,119	100.0
Wages & benefits	3,336	21.2	4,018	27.1	3,757	40.5	3,427	31.4	2,933	29.0
Goods	5,787	36.8	5,385	36.3	2,525	27.2	3,112	28.6	2,349	23.2
Services	847	5.4	840	5.7	534	5.7	1,543	14.2	983	8.9
Transfers	3,978	25.3	2,955	19.9	901	9.7	668	6.1	716	7.1
Pensions	1,784	11.3	1,623	11.0	1,570	16.9	2,146	19.7	3,218	31.8

Data from MDH budget office records.

TABLE 11

MOH CAPITAL EXPENDITURES BY CATEGORY  
 CENTRAL LEVEL, 1980 - 84  
 (in millions of 1980 soles)

Category	1980		1981		1982		1983		1984	
	Total	%								
Total	8,749	100.0	6,892	100.0	4,639	100.0	3,105	100.0	5,833	100.0
Studies	256	2.9	253	3.7	195	4.2	47	1.5	199	3.4
Construction	7,657	87.5	5,638	81.8	4,232	91.2	2,102	67.7	3,439	59.0
Equipment	437	5.0	815	11.8	212	4.6	931	30.0	2,147	36.8
Other	399	4.6	186	2.7	0	0.0	25	0.8	48	0.8

Data from MOH budget office records.

TABLE 12

MOH RECURRENT EXPENDITURES BY CATEGORY  
 REGIONAL LEVEL, 1980 - 84  
 (in millions of 1980 soles)

Category	1980		1981		1982		1983		1984	
	Total	%								
Total	42,091	100.0	46,887	100.0	45,737	100.0	43,742	100.0	41,882	100.0
Wages & benefits	29,922	71.1	32,091	68.6	35,450	75.9	35,119	80.3	33,284	79.5
Goods	8,079	19.2	9,884	21.1	9,349	20.0	6,789	15.5	6,305	15.1
Services	1,031	2.5	1,533	3.3	1,446	3.1	1,079	2.5	977	2.3
Transfers	2,409	5.7	2,621	5.6	17	0.0	6	0.0	11	0.0
Pensions	650	1.5	678	1.4	475	1.0	749	1.7	1,385	3.1

Data from MOH budget office records.

TABLE 13

MOH CAPITAL EXPENDITURES BY CATEGORY  
 REGIONAL LEVEL, 1980 - 84  
 (in millions of 1980 soles)

Category	1980		1981		1982		1983		1984	
	Total	%								
Total	654	100.0	165	100.0	874	100.0	316	100.0	210	100.0
Studies	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Construction	283	43.3	116	70.3	317	36.3	97	30.7	0	0.0
Equipment	371	56.7	49	29.7	557	63.7	219	69.3	210	100.0
Other	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Data from MOH budget office records.

TABLE 14

DISTRIBUTION OF MOH REGIONAL EXPENDITURES, 1982 - 84  
(in millions of 1980 soles)

Region	1982		1983		1984	
	Total	%	Total	%	Total	%
Piura	1,913	4.0	1,655	3.8	1,583	3.8
Chiclayo	1,559	3.3	1,371	3.1	1,338	3.2
Cajamarca	716	1.5	629	1.4	638	1.5
Trujillo	2,381	4.8	2,175	4.9	2,115	5.0
Huaraz	1,621	3.4	1,787	4.1	1,563	3.7
Lima/Callao	23,259	48.9	21,762	49.4	20,287	47.9
Ica	2,004	4.2	1,812	4.1	1,665	3.9
Arequipa	2,498	5.2	2,524	5.7	2,385	5.5
Tacna	1,186	2.5	1,062	2.4	1,058	2.5
Puno	1,215	2.6	1,178	2.7	1,315	3.1
Cusco	2,334	4.9	1,963	4.5	2,001	4.7
Ayacucho	734	1.5	591	1.3	611	1.4
Huancayo	2,618	5.5	2,483	5.5	2,573	6.1
Huanuco	1,587	3.2	1,257	2.9	1,320	3.1
Moyobamba	1,092	2.3	967	2.2	1,008	2.4
Iquitos	1,054	2.2	922	2.1	879	2.1
<b>TOTAL</b>	<b>47,611</b>	<b>100.0</b>	<b>44,858</b>	<b>100.0</b>	<b>42,173</b>	<b>100.0</b>

Data from MOH budget office records.

Note: Chiclayo is Lambayeque-Amazonas region.

TABLE 15

SHARE OF WAGE EXPENDITURES IN MOH TOTAL REGIONAL EXPENDITURES, 1982 - 84  
(in millions of 1980 soles and horizontal distribution in percentages)

Region	1982						1983						1984					
	Wages	%	Other	%	Total	%	Wages	%	Other	%	Total	%	Wages	%	Other	%	Total	%
Piura	1,557	81.4	356	18.6	1,913	100.0	1,354	82.4	291	17.6	1,655	100.0	1,265	79.9	318	20.1	1,583	100.0
Chiclayo	1,325	85.0	234	15.0	1,559	100.0	1,221	89.1	150	10.9	1,371	100.0	1,152	86.1	166	13.9	1,338	100.0
Cajamarca	538	75.1	178	24.9	716	100.0	486	77.3	143	22.7	629	100.0	589	79.8	129	20.2	638	100.0
Trujillo	1,952	84.8	349	15.2	2,301	100.0	1,847	84.9	328	15.1	2,175	100.0	1,689	79.9	426	20.1	2,115	100.0
Huaraz	1,298	80.1	323	19.9	1,621	100.0	1,338	74.4	457	25.6	1,787	100.0	1,293	82.7	270	17.3	1,563	100.0
Lima/Callao	16,535	71.2	6,704	28.8	23,259	100.0	17,094	78.5	4,668	21.5	21,762	100.0	16,069	79.5	4,138	20.5	20,207	100.0
Ica	1,624	81.0	380	19.0	2,004	100.0	1,540	85.0	272	15.0	1,812	100.0	1,350	81.1	315	18.9	1,665	100.0
Arequipa	2,031	81.3	467	18.7	2,498	100.0	2,087	82.7	437	17.3	2,524	100.0	1,824	79.1	481	20.9	2,305	100.0
Tacna	883	74.5	303	25.5	1,186	100.0	815	76.7	247	23.3	1,062	100.0	785	74.2	273	25.8	1,058	100.0
Puno	972	80.0	243	20.0	1,215	100.0	1,010	85.7	168	14.3	1,178	100.0	1,139	86.6	176	13.4	1,315	100.0
Cusco	1,782	76.3	552	23.7	2,334	100.0	1,536	78.2	427	21.8	1,963	100.0	1,561	78.0	440	22.0	2,001	100.0
Ayacucho	518	70.5	216	29.4	734	100.0	437	73.9	154	26.1	591	100.0	451	73.8	160	26.2	611	100.0
Huancayo	1,812	69.2	806	30.8	2,618	100.0	1,819	75.7	584	24.3	2,403	100.0	1,809	70.3	764	29.7	2,573	100.0
Huanuco	1,016	67.4	491	32.6	1,507	100.0	932	74.1	325	25.9	1,257	100.0	966	73.2	354	26.8	1,320	100.0
Moyobamba	744	68.1	348	31.9	1,092	100.0	691	71.5	276	28.5	967	100.0	748	74.2	260	25.8	1,008	100.0
Iquitos	843	80.0	211	20.0	1,054	100.0	728	79.0	194	21.0	922	100.0	674	76.7	205	23.3	879	100.0
TOTAL	35,450	74.5	12,161	25.5	47,611	100.0	34,937	79.3	9,121	20.7	44,058	100.0	33,284	78.9	8,895	21.1	42,179	100.0

Data from MOH budget office records.

Note: Chiclayo is Lambayeque-Amazonas region.

TABLE 16

COMPARISON OF MDH REGIONAL EXPENDITURES BETWEEN WAGES AND SELECTED GOODS AND SERVICES, 1984  
(in millions of 1980 soles and horizontal distribution in percentages)

Region	Wages		Medicines		Lab. Supplies		Food		Maintenance		Other		Totals	
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
Piura	1,265	79.9	51	3.2	5	0.3	45	2.8	56	3.5	161	10.2	1,583	100.0
Chiclayo	1,152	86.1	21	1.6	2	0.1	29	2.2	25	1.9	109	8.1	1,338	100.0
Cajamarca	509	79.8	36	5.6	1	0.2	24	3.8	22	3.4	46	7.2	638	100.0
Trujillo	1,689	79.9	69	3.3	11	0.5	48	2.3	53	2.5	245	11.6	2,115	100.0
Huaraz	1,293	82.7	58	3.7	4	0.3	40	2.6	51	3.3	117	7.5	1,563	100.0
Lima/Callao	16,069	79.5	1,137	5.6	145	0.7	1,027	5.1	798	3.9	1,031	5.1	20,207	100.0
Ica	1,350	81.1	50	3.0	5	0.3	58	3.5	46	2.8	156	9.4	1,665	100.0
Arequipa	1,824	79.1	46	2.0	4	0.2	82	3.6	71	3.1	278	12.1	2,305	100.0
Tacna	785	74.2	61	5.8	2	0.2	45	4.3	35	3.3	130	12.3	1,058	100.0
Puno	1,139	86.6	46	3.5	3	0.2	29	2.2	34	2.6	64	4.9	1,315	100.0
Cusco	1,561	78.0	90	4.5	6	0.3	74	3.7	56	2.8	214	10.7	2,001	100.0
Ayacucho	451	73.8	70	11.5	6	1.0	19	3.1	28	4.6	37	6.1	611	100.0
Huancayo	1,809	70.3	263	10.2	16	0.6	83	3.2	124	4.8	278	10.8	2,573	100.0
Huanuco	966	73.2	109	8.3	6	0.5	46	3.5	74	5.6	119	9.0	1,320	100.0
Moyobamba	748	74.2	85	8.4	4	0.4	26	2.6	37	3.7	108	10.7	1,008	100.0
Iquitos	674	76.7	11	1.3	1	0.1	24	2.7	20	2.3	149	17.0	879	100.0
<b>TOTAL</b>	<b>33,284</b>	<b>78.9</b>	<b>2,203</b>	<b>5.2</b>	<b>221</b>	<b>0.5</b>	<b>1,699</b>	<b>4.6</b>	<b>1,530</b>	<b>3.6</b>	<b>3,242</b>	<b>7.7</b>	<b>42,179</b>	<b>100.0</b>

Data from MDH budget office records.

Note: Chiclayo is Lambayeque-Amazonas region.

TABLE 17

DISTRIBUTION OF MOH RESOURCES IN RELATION TO POPULATION BY HEALTH REGION, 1984  
(in absolute terms and in percentages)

Health Regions	MOH RESOURCES							
	Population share		Financial share		Bed share		HCP share	
	Total	%	Total	%	Total	%	Total	%
Piura	1,746,713	9.3	19,783	3.8	496	3.1	154	6.5
Chiclayo	1,375,512	7.3	16,723	3.2	455	2.8	156	6.5
Cajamarca	865,449	4.6	7,982	1.5	131	0.8	88	3.7
Trujillo	1,052,512	5.6	26,431	5.0	439	2.7	120	5.0
Huaraz	929,472	4.9	19,558	3.7	575	3.6	113	4.7
Lima/Callao	5,289,483	28.1	252,582	47.9	8,060	49.8	312	13.1
Ica	697,230	3.7	20,812	3.9	737	4.6	127	5.3
Arequipa	808,600	4.3	28,810	5.5	1,146	7.1	108	4.5
Tacna	280,400	1.5	13,219	2.5	447	2.8	58	2.4
Puno	946,700	5.0	16,435	3.1	487	2.5	130	5.5
Cusco	1,232,887	6.5	25,012	4.7	1,075	6.6	226	9.5
Ayacucho	463,275	2.5	7,633	1.4	251	1.6	68	2.9
Huancayo	1,325,097	7.0	32,164	6.1	878	5.4	279	11.7
Huanuco	880,279	4.7	16,587	3.1	571	3.5	164	6.9
Moyobamba	371,500	2.0	12,599	2.4	216	1.3	147	6.2
Iquitos	559,800	3.0	10,990	2.1	299	1.8	134	5.6
<b>TOTAL</b>	<b>18,824,829</b>	<b>100.0</b>	<b>527,240</b>	<b>100.0</b>	<b>16,183</b>	<b>100.0</b>	<b>2,384</b>	<b>100.0</b>

Data from MOH budget office records.

Note: Chiclayo is Lambayeque-Amazonas region.

Financial share is actual expenditures in millions of current soles.

TABLE 18  
 MAJOR SOURCES OF FOREIGN AID, 1978 - 85  
 (in millions of U.S. dollars)

Source	Amount	Implementation	Terms	Objectives
Pan American Health Organization	1.100	1978 - 84	Grant	Maternal and child health care
World Bank	33.500	1983 - 88	Loan	Primary health care expansion
Interamerican Development Bank	0.675	1982 - 84	Grant	Health care training
US Agency for International Development	5.000 1.350	1979 - 85	Loan Grant	Primary health care expansion
US Agency for International Development	4.000 6.900	1981 - 86	Loan Grant	Primary health care expansion and family planning
US Agency for International Development	10.000 1.000	1980 - 87	Loan Grant	Potable water and basic sanitation for villages
German Technical Assistance Program	4.000 1.400		Loan Grant	Primary health care expansion and hospital renovation
Subtotal	57.300 12.325		Loan Grant	
Total	69.625			

Source: Westinghouse 1985.

TABLE 19A

COMPOSITION OF ESTIMATED PRIVATE HEALTH SECTOR  
EXPENDITURES AND COVERAGE, 1984  
(expenditures in constant 1980 soles)

Composition of sector	Expenditures (millions)	Coverage (thousands)	Expenditure per capita (thousands)
<b>A. Medical services</b>			
Direct household expenditures			
Urban, rich	4,335	500	8.7
Urban, poor	1,445	1,000	1.4
Rural, poor	5,780	5,000	1.2
Health insurance	3,107	215	14.5
Employer and provider plans	1,228	85	14.5
Cooperatives			
Urban	5,282	900	5.8
Rural	1,445	100	4.3
Private voluntary organizations			
Urban	3,757	1,300	2.9
Rural	2,681	900	2.9
Subtotal, urban	19,074	4,000	4.6-4.9
Subtotal, rural	9,826	6,000	1.4-1.7
Total, medical services	28,900	10,000	2.9
<b>B. Pharmaceuticals</b>			
Sales to households	28,900		
Sales to providers	13,085	13,000	
Subtotal, pharmaceuticals	41,985	13,000	3.2
<b>TOTAL, A + B</b>	<b>70,885</b>	-	-

Note: See technical note for explanation of assumptions underlying coverage and expenditure estimates.

TABLE 19B

COMPOSITION OF ESTIMATED PRIVATE HEALTH SECTOR  
EXPENDITURES AND COVERAGE, 1984  
(expenditures in U.S. dollars)

Composition of sector	Expenditures (thousands)	Coverage (thousands)	Expenditure per capita
<b>A. Medical services</b>			
Direct household expenditures			
Urban, rich	15,000	500	30
Urban, poor	5,000	1,000	5
Rural, poor	20,000	5,000	4
Health insurance	10,750	215	50
Employer and provider plans	4,250	85	50
Cooperatives			
Urban	18,000	900	20
Rural	5,000	100	15
Private voluntary organizations			
Urban	13,000	1,300	10
Rural	9,000	900	10
Subtotal, urban	66,000	4,000	16-17
Subtotal, rural	34,000	6,000	5-6
Total, medical services	100,000	10,000	10
<b>B. Pharmaceuticals</b>			
Sales to households	100,000		
Sales to providers	45,000	13,000	
Subtotal, pharmaceuticals	145,000	13,000	11
<b>TOTAL, A + B</b>	<b>245,000</b>	-	-

Note: See technical note for explanation of assumptions underlying coverage and expenditure estimates.

TABLE 20

PRIVATE HEALTH INSURANCE SALES, 1977 - 84  
(in thousands of constant 1980 soles)

	1977	1978	1979	1980	1981	1982	1983	1984
<b>All Policies</b>								
Gross Insurance Sales	63,809	55,251	54,699	60,961	62,003	62,100	59,100	60,613
Reinsurance Costs	39,489	33,517	33,673	36,757	37,069	31,693	32,574	31,938
Net Sales	24,399	21,734	21,026	24,204	25,734	30,407	26,526	28,676
.....								
<b>Health Policies</b>								
Gross Insurance Sales	1,117	1,206	1,811	2,430	3,231	3,329	3,262	3,511
Reinsurance Costs	89	45	0	0	0	22	22	27
Net Sales	1,028	1,161	1,811	2,430	3,231	3,307	3,240	3,484
.....								
Health policies as % of total	1.86	2.45	3.61	4.31	5.53	6.79	6.05	8.00

Source: Superintendencia de Banca, Seguros, Memorias Anuales.

TABLE 21

COMPOSITE OF ESTIMATED HEALTH SECTOR EXPENDITURES AND COVERAGE, 1984  
(totals in millions)

	Expenditures (US\$)		Coverage		Expenditure per capita in US\$
	Total	Percent	Total	Percent	
Public sector, urban					
MOH	120	16.4	2.0	10.5	60
IPBS	241	32.9	3.5	18.4	69
Other	46	6.3	0.5	2.6	92
Subtotal, urban	407	55.6	6.0	31.6	68
Public sector, rural					
MOH	80	10.9	3.0	15.8	27
Public sector, subtotal	487	66.5	9.0	47.4	54
Private sector, urban					
Households, direct	20	2.7	1.5	7.9	13
Third party pmts. (1)	46	6.3	2.5	13.2	18
Subtotal, urban	66	9.0	4.0	21.1	17
Private sector, rural					
Households, direct	20	2.7	5.0	26.3	4
Third party pmts. (1)	14	1.9	1.0	5.3	14
Subtotal, rural	34	4.6	6.0	31.6	6
Private sector, subtotal	100	13.7	10.0	52.6	10
All urban, subtotal	473	64.5	10.0	52.6	47
All rural, subtotal	114	15.6	9.0	47.4	13
Pharmaceuticals	145	19.8	13.0 (2)	68.4	11
Total health sector	732	100.0	19.0	100.0	39

Note: Average per capita expenditures for the 13 million Peruvians who are assumed to have modern health care in either the public or the private sector is US\$54 (i.e. US\$732 million, minus US\$25 million expended by six million urban and rural poor, divided by 13 million).

(1) Third party payments refers to all employer and provider plans, risk-sharing mechanisms, cooperatives and private voluntary organizations included in Table 19.  
(2) Pharmaceuticals sold through the private sector are assumed to be unaffordable for six million Peruvians who are not covered by modern medical services but who are included in total coverage on the assumption that they are making expenditures for traditional health services.

## TECHNICAL NOTE

### Private Health Care Expenditures

The estimates shown in Table 19 draw upon available information, which is very limited and sometimes misleading, and are therefore heavily supplemented by reasonable guesses. The term "coverage," as used in the second column of Table 19, refers to the absolute numbers of Peruvians who primarily use private sector sources of medical services and pharmaceuticals in satisfying their demand for health care.

1. Coverage estimates for employer and provider plans and for risk-sharing mechanisms were developed by Solari *et al.* (forthcoming). Coverage estimates for cooperatives are modified data based on an MSH study (Bates and Prentice, 1983); coverage estimates for PVOs are taken from a second MSH study (Keaty and Keaty, 1983).

2. Coverage estimates referring to direct expenditures by households for private sector medical services reflect the residual population, after MOH, IPSS, other public sector and all private sector coverage has been added up. This includes 500,000 urban "rich," (see 3.c, below) as well 1,000,000 urban poor and 5,000,000 rural poor residents. The poor must be assumed to be the very poorest in the urban areas and the majority of rural inhabitants, all of whom are beyond the reach of MOH services and of health care provided by cooperatives and PVOs. While these six million poorest Peruvians use traditional rather than modern health care, anthropological research shows that they are indeed allocating some of their incomes to paying for such services -- often largely by barter, involving only minimal monetary expenditures (Davidson, 1983). Moreover, it is consistent to include an estimate of payments in the form of barter, inasmuch as standard national income accounts also include an estimate of in-kind exchanges and household consumption of self-produced farm output.

3. The expenditure estimates are arrived at by assuming for each population segment in the "coverage" column of Table 19 an average annual per capita expenditure:

a) For the employer and provider plans and for the risk-sharing mechanisms, the per capita expenditure is assumed to be US \$50, which is US \$20 less than the per capita expenditure for medical care by IPSS. For urban cooperatives, the per capita expenditure is also assumed to be relatively high, at US \$20, because cooperatives appear to provide ambulatory care comparable to that provided under employer, provider and risk-sharing arrangements -- although they

probably provide fewer hospitalization benefits.

b) All urban and rural medical services provided by PVOs are assumed to be US \$10 per capita for their respective population coverage, equivalent to the per capita expenditure for primary health care by the MOH (see Chapter III).

c) Direct household expenditures by the urban "rich" are assumed to be US \$30 per capita, which for many individuals would be supplemental to third-party coverage under employer plans or represent co-payment obligations under insurance coverage.

d) Direct household expenditures for medical services by the poor in the private sector are assumed to be about US \$5 in the urban areas and US \$4 in the rural areas (including barter). Assuming that the poorest one-third of the Peruvian population has an average annual per capita income of US \$100-200, these Peruvians are spending about 2-4 percent of this income on medical services (including any self-medication with traditional remedies, since they presumably do not have enough monetary income to buy modern pharmaceuticals).

4. Pharmaceutical sales in the private sector have been calculated as totaling US \$145 million in 1984 (HSA-Peru, 1986: Gereffi). Excluding the six million poorest, an average per capita expenditure for pharmaceuticals of US \$11 is thus equivalent to about 20 percent of total average health expenditures of US \$54 per capita for the 13 million who have access to either public or private sector modern health services. Total private sector pharmaceutical sales (see Table 19) have been divided between households and health care providers. The US \$45 million worth of pharmaceuticals purchased by providers is somewhat less than the total of US \$55 million in pharmaceutical products purchased by the public sector in 1984. This makes some sense; private sector providers are estimated in Table 19 to have accounted for US \$60 million in expenditures for medical services, not including pharmaceuticals. The latter would represent about 40 percent of total expenditures for modern health care in the private sector, which is the same as figures reported by INE based on institutional sampling of private health care expenditures.

5. The data and estimates in Table 19 are obviously not intended to be definitive. They are, however, meant to complement and be consistent with the public sector analysis of expenditures in Chapter III, above, and in the HSA-Peru study of medical care under IPSS (HSA-Peru 1986: Mesa-Lago). Table 21, the composite table of coverage and expenditures, should be regarded as no more

than a model whose assumptions can be changed -- or, preferably, replaced with real data -- to yield different results, particularly for private health care.