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Health care markets: *their morphology,* behaviour and regulation

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This article analyses the markets for health care-related goods and services. Particular attention is devoted to three of those markets: medical services, public and private hospital services, and pharmaceuticals. These three markets—which, taken together, account for between 70% and 80% of total health-care operating expenditures—have structures that are characterized by imperfect competition, marked externalities in terms of the consumption of health care, and a high degree of interdependence. As a consequence of the first two of these traits, if these markets are left to their own devices they will not generate optimal solutions in terms of resource allocation or the maximization of well-being. By the same token, their interdependence leads to the transmission of distortions from one health-care market to the next and, in most cases, also tends to magnify those distortions that already exist in any one of these markets. This state of affairs has crucial implications for public policy-making, which, of course, must also take into account the particular economic, social and political conditions existing in each country. The authors therefore identify and analyse a number of regulatory measures which would appear to be advisable for each of these markets and which—if bolstered by the type of institutional, legal and regulatory retooling called for in each case—would diminish, if not eliminate altogether, their incompatibilities with the deregulatory and free-market theories that are now seen as appropriate in other spheres of economic activity.

I

Introduction

The members of any given society care for, maintain and regain their health through the use of human resources (doctors, other health-care professionals and other types of personnel), equipment and instruments, public and private hospital services, vaccines and pharmaceuticals, and other health-care and general-purpose inputs. These resources are used in varying proportions and combinations, which are normally determined by health-care professionals, since they are generally the ones who decide which examinations and tests are necessary, assume responsibility for the clinical diagnosis of any pathologies that are detected, and decide what types of treatment are to be given.¹

Each of these services and inputs has a market of its own made up of a variety of suppliers (public as well as private, national as well as foreign) and users (of final or intermediate, consumer or capital goods and services). These markets all have a going price (or, more accurately, price range) at which the relevant agents—suppliers (i.e., health-care providers) and users (i.e., patients)—have arrived in accordance with certain rules of conduct that are observed within the framework of more or less competitive markets.

□ This article contains a portion of the material prepared by the authors for the ECLAC/PAHO study entitled *Health, social equity and changing production patterns in Latin America and the Caribbean* (document LC/G.1813 (SES.25/18)), which was presented at the twenty-fifth session of ECLAC (Cartagena de Indias, April 1994). The opinions expressed here are those of the authors and do not necessarily reflect the views of the above organizations. The ideas set forth in this article were discussed on various occasions with R. Franco, J. Ramos, F. León and M. Boyer, whom the authors wish to thank for their many contributions, while at the same time emphasizing that they bear no responsibility for the contents of this article.

¹ In a study conducted in the late 1970s, Blumberg estimated that nearly 70% of a community's total expenditure on health services is determined by the decisions taken by medical professionals.

² The interdependence of supply and demand which stems from the ability of the former to influence or shape the latter is a hallmark of health-care markets. This influences the behaviour of suppliers of goods and services and, hence, the nature and mode of operation of the regulatory apparatus that needs to be established in order to induce the sort of microeconomic behaviour that will lead to a socially optimal outcome. The final section of this article presents a more detailed discussion of public policy issues relating to the regulation of health care.

For the most part, these are imperfect markets in which supply is to some extent capable of creating its own demand.² The variations in the prices of goods and services that are either identical or similar enough to serve as substitutes for one another are generally considerable, since the standards by which quality and therapeutic value should be measured are hazy even for suppliers themselves. Owing to the phenomenon known as "information asymmetry", consumers do not have a clear picture of exactly what is required to meet their needs or of how much better one expenditure option might be than another, and the sovereignty of the consumer can therefore be exercised only in a highly imperfect manner. The random nature of disease, the variability of diagnoses and therapies, and the uncertainty that exists in regard to technological development in the health field and its cost frequently complicate risk management efforts, thereby giving rise to instances of risk selection or risk avoidance.

Three of these markets—the markets for medical services, hospitalization services and pharmaceuticals—absorb between 70% and 80% of the total resources expended by society on the care and restoration of its members' health.³ Each of these markets raises specific issues in terms of their organization and behaviour; here, we will first look at these issues individually and will then go on to consider the question of their interdependence.

Any analysis of the model used by a given society to organize its health care services must necessarily take the interdependence of the relevant markets into consideration, because of the impact it has on the way in which resources are distributed among the various suppliers of goods and services who interact within this sector. Our argument in this paper is that the way in which the health care system operates is strongly influenced by the changes undergone by that resource distribution over time.

³ For example, in the United States medical services take up 20% of total expenditures on health care, hospitalization costs account for 40% and medicines for 10% of total expenditure (Feldstein, 1983, pp. 33). In Argentina, however, medical services absorb 28%, hospitalization 22% and medicines 30% of total expenditure (Katz and Muñoz, 1988).

To the extent that each cluster or group of service providers is capable of adjusting the quantity or quality of supply in response to reductions in the relative prices of the goods or services they have to offer, the behaviour of each market and the interdependence among them play a crucial role in accounting for the way in which the system evolves as a whole and for the nature of its predominant traits in

terms of microeconomic effectiveness and efficiency and distributive equity.

The following section (section II) deals with the morphological features and interdependence of health care markets. In section III, we will briefly explore the public-policy implications of the analysis of health sector organization presented here. Concluding remarks and comments are set forth in section IV.

II

The morphology and interdependence of health-care markets

The growth of health-care markets is primarily a function of the medical-services market, since medical professionals are the crucial factor in the process of production of health services. Medical practices dictate the nature of the technologies to be used and thus determine the relative proportions of other factors of production to be used. To a large extent, the demand for instruments and equipment, inputs, pharmaceuticals and hospitalization services is a derived demand. Although possibilities of complementarity and product substitution among these factors do exist, the extent to which they are used is none the less determined by doctors and, to a lesser degree, by other health-care professionals.

1. The medical services market

The supply of medical services varies markedly from one Latin American country to the next, as well as from one area to another within each country (see table 1). This fact is reflected in the differences in the index of the number of persons per doctor (see table 2), since this index is similar to the European average in some countries but is only a fraction of that figure in others. Thus, in Argentina, Uruguay and Cuba the average index is roughly one doctor for every 300 persons; in Chile, Colombia and Peru, it is one doctor for every 900 inhabitants; and in a number of other countries, the average figure is just one doctor for over 2 000 persons.⁴ This undoubtedly influences the per capita rate of medical consultations, an indicator which likewise exhibits sharp differences between countries and between regions within each country.

Aside from the doctor/population ratio, the behaviour of the medical services market is also influenced by three major sets of variables. The first of these has to do with the growth rate, degree of specialization and breakdown by sex of the supply of new graduates in medicine, dentistry, nursing and other health-care professions, and their geographic location. These variables influence both the shape of the services supply curve and the way it shifts over time, thereby affecting the price (fees charged for medical services), quality and form of organization of medical care. Relevant factors in this regard include the university entrance requirements (entrance examinations or other forms of screening university applicants), the accreditation requirements for practicing medical professions established by the institutional and regulatory organizations operating in each society, the mechanisms for specialization existing in the medical and other health-care professions, and the percentage of female graduates (since young female doctors display a greater propensity than their male counterparts to work part time and to work under someone else).

⁴ The average index for the countries of the Organization for Economic Cooperation and Development (OECD) is 2.3 doctors for every 1 000 persons (Schieber and others, 1991). Thus, in countries such as Argentina, Uruguay and Cuba, the medical services market is substantially more saturated than it is, on average, in the industrialized countries, with a heavy concentration of these professionals in urban centres and large metropolitan areas. Montevideo, for example, has one doctor for every 200 inhabitants, and the city of La Plata (capital of the Province of Buenos Aires, Argentina) has the remarkably high rate of one doctor for every 120 people, which is virtually unheard-of anywhere else in the world. Regarding the indexes for Europe, see Schieber and Poullier (1989) and Greenwald (1991).

TABLE I

**Latin America and the Caribbean (29 countries):
Human resources in the field of health care, around 1990**

| Country | Population (thousands) | Doctors | Dentists | Professional nurses | Nursing auxiliaries and other personnel |
|---------------------|---------------------------|---------|----------|------------------------|---|
| Argentina | 32 700 | 88 800 | 21 900 | 18 000 | 26 000 |
| Bahamas | 259 | 373 | 58 | 682 | 1 000 |
| Barbados | 258 | 294 | 33 | 836 | 502 |
| Bermuda | 61 | 71 | 27 | 27 | 523 |
| Bolivia | 7 300 | 3 392 | 333 | 1 869 | 4 713 |
| Brazil | 151 400 | 208 966 | 118 609 | 57 047 | 205 110 |
| Colombia | 32 800 | 36 551 | 19 498 | 15 251 | 31 125 |
| Costa Rica | 3 100 | 4 027 | 1 200 | 3 021 | 4 000 |
| Cuba | 10 740 | 46 860 | 8 057 | 5 474 | 68 469 |
| Chile | 13 400 | 15 015 | 7 000 | 5 653 | 28 794 |
| Dominica | 72 | 38 | 6 | 233 | ... |
| Ecuador | 10 800 | 15 737 | 4 847 | 5 045 | 11 384 |
| El Salvador | 5 300 | 4 525 | 1 182 | 2 655 | 2 439 |
| Guatemala | 9 500 | 7 601 | 251 | 3 120 | 11 281 |
| Guyana | 800 | 138 | 11 | 708 | 83 |
| Haiti | 6 600 | 564 | 81 | 728 | 1 761 |
| Honduras | 5 300 | 3 803 | 622 | 1 352 | 4 936 |
| Virgin Islands | 99 | 21 | 1 | 48 | 27 |
| Jamaica | 2 400 | 338 | 54 | 2 130 | 1 355 |
| Mexico | 83 300 | 149 432 | ... | 80 760 | 61 540 |
| Montserrat | 14.4 | 5 | 1 | 38 | 18 |
| Nicaragua | 3 800 | 1 723 | 183 | 2 200 | 2 569 |
| Panama | 2 500 | 4 131 | 957 | 2 630 | 3 341 |
| Paraguay | 4 400 | 2 924 | 1 160 | 1 375 | 3 183 |
| Peru | 21 900 | 23 771 | 6 259 | 19 612 | 38 850 |
| Dominican Republic | 7 200 | 11 130 | 1 898 | 1 360 | 4 675 |
| Trinidad and Tobago | 1 300 | 911 | 109 | 2 037 | 1 438 |
| Uruguay | 3 100 | 11 530 | 3 512 | 1 710 | 1 500 |
| Venezuela | 19 800 | 32 616 | 7 945 | 15 026 | 40 324 |

Source: Population figures: World Bank, *World Development Report, 1993*, Washington D.C., 1993; all other statistics: Pan-American Health Organization (PAHO)/World Health Organization (WHO), *Las condiciones de salud en las Américas 1994* (in the press).

In analysing the educational system, it is important to take into account both quantitative factors—medical-school entrance requirements, enrolment, the amount of time required for the completion of medical school and its cost, the nature of medical residencies, rates of specialization, attrition rates, etc.—and qualitative aspects having to do with the greater or lesser amount of “biologistic” or “social” content in the training imparted to medical students. In discussing the undergraduate educational system, Belmartino and others (1990) have stated that: “The current situation may be described as follows: (a) Special emphasis is given to the type of practice conducted in hospitals devoted to the treatment of rare, acute diseases; (b) Health-care functions corresponding to the most active phases of a disease are stressed, while

such aspects as rehabilitation, re-entry into everyday life, follow-up on chronic diseases, etc., are relegated to a position of secondary importance; (c) The focus is on the curative aspects of health care, while promotion and prevention are neglected; (d) The psychological, social and environmental factors involved in the health/sickness situation are disregarded, and the contributions that could be made by the social sciences, human sciences and epidemiology have not been effectively integrated into the curriculum; (e) Rote learning is emphasized, while not enough attention is paid to reasoning ability and the development of sound clinical judgement in evaluating the condition of the patient”. These authors conclude that: “the educational system lays the intellectual groundwork for the reproduction of the dominant medical model”.

CUADRO 2

**Latin America and the Caribbean (29 countries): Ratio between
population and human resources in the field of health care, around 1990**

| Country | Number of persons per doctor | Number of persons per dentist | Number of persons per nurse | Number of persons per other type of health personnel |
|---------------------|------------------------------------|-------------------------------------|-----------------------------------|--|
| Argentina | 368 | 1 493 | 1 817 | 1 258 |
| Bahamas | 694 | 4 466 | 380 | 259 |
| Barbados | 878 | 7 818 | 309 | 514 |
| Bermuda | 859 | 2 259 | 2 259 | 117 |
| Bolivia | 2 152 | 21 922 | 3 906 | 1 549 |
| Brazil | 725 | 1 276 | 2 654 | 738 |
| Colombia | 897 | 1 682 | 2 151 | 1 054 |
| Costa Rica | 770 | 2 583 | 1 026 | 775 |
| Cuba | 229 | 1 333 | 1 962 | 157 |
| Chile | 892 | 1 914 | 2 370 | 465 |
| Dominica | 1 895 | 12 000 | 309 | ... |
| Ecuador | 686 | 2 228 | 2 141 | 949 |
| El Salvador | 1 171 | 4 484 | 1 996 | 2 173 |
| Guatemala | 1 250 | 37 849 | 3 045 | 842 |
| Guyana | 5 797 | 72 727 | 1 130 | 9 639 |
| Haiti | 11 702 | 81 481 | 9 066 | 3 748 |
| Honduras | 1 394 | 8 521 | 3 920 | 1 074 |
| Virgin Islands | 4 714 | 99 000 | 2 063 | 3 667 |
| Jamaica | 7 101 | 44 444 | 1 127 | 1 771 |
| Mexico | 557 | 1 031 | 1 354 | ... |
| Montserrat | 2 880 | 14 400 | 379 | 800 |
| Nicaragua | 2 205 | 20 765 | 1 727 | 1 479 |
| Panama | 605 | 2 612 | 951 | 748 |
| Paraguay | 1 505 | 3 793 | 3 200 | 1 382 |
| Peru | 921 | 3 499 | 1 117 | 564 |
| Dominican Republic | 647 | 3 793 | 5 294 | 1 540 |
| Trinidad and Tobago | 1 427 | 11 927 | 638 | 904 |
| Uruguay | 269 | 883 | 1 813 | 2 067 |
| Venezuela | 607 | 2 492 | 1 318 | 491 |

Source: Population figures: World Bank, *World Development Report, 1993*, Washington D.C., 1993; all other statistics: Pan-American Health Organization (PAHO)/World Health Organization (WHO), *Las condiciones de salud en las Américas 1994* (in the press).

In other words, in a system where medicine is oriented towards a high degree of complexity, "over-medicalization" and *ex post* reparatory treatment, the training imparted by medical schools –because they need to turn out doctors who will be able to fit in efficiently into the existing system– ends up accentuating those traits by pushing new graduates in the direction of rapid specialization, the use of highly sophisticated technologies, and increasing fragmentation of medical care.

The second set of variables that influences the medical services market is the form of sectoral organization –i.e., wholly public or private– used by the society in question for the financing, management and provision of these services. Thus, in systems where the public sector is responsible for the provision and financing of health care, doctors are salaried officials of the State, whereas in a mixed system –in which the public sector, social security institutions

and the private sector share the task of financing and providing health care– differing forms of market behaviour and types of transfers come into play which are virtually alien to primarily public systems.

In mixed systems, the earnings of members of the medical profession –and of other health-care professions too, although to a lesser degree– do not come only from the salaries paid to them for functions they perform as public servants. Instead, increasingly significant portions of their earnings take the form of professional fees charged in private practice and profits derived from the ownership of instruments, equipment and hospital infrastructure. Through their ownership of such capital goods, medical professionals operate as subcontractors of social security institutions, privately-owned companies that provide health-care services and, on occasion, government bodies.

The way in which this public/private mix gradually shifts towards a greater role for the private sector is closely associated with the development and formalization of health-care markets. As these markets develop, the economic rents afforded by ownership of capital goods and infrastructure come to represent a growing percentage of health-care professionals' total income, and as this process proceeds, these economic rents are increasingly a function of the profits associated with the introduction of highly sophisticated electronic medical equipment (CAT scanners, echograph machines, gammagraphs, etc.).

In such situations, efforts to capture and increase the demand for health-care services move away from competition based on prices and reductions in production costs and instead become focused on product differentiation based on an increasing degree of technological sophistication. This motivates professionals to become more specialized (i.e., to invest in human capital), to acquire instruments and equipment, and to employ diagnostic and therapeutic methods that involve the use of leading-edge technology. Consequently, a growing share of their income will come from investment and technological innovation. In an associated phenomenon, increases and changes are seen in the types of demands faced by the system as regards the training of health-care professionals (combined with increasing restrictions on market entry in the form of specialization requirements) and in the demands that must be met by producers of instruments, equipment and infrastructure. The most dynamic sector will thus be the one that has the greatest concentration of state-of-the-art technology, which is more profitable than traditional technologies.

The third and last set of variables influencing the operation of the medical services market have to do with the payment arrangements used in each organizational model, i.e., flat-rate salaries, payment for each consultation or visit, payment on a per-patient basis, payment for an entire course of treatment, payment on the basis of the results achieved, etc. In mixed public/private models, the practice of making payments for each consultation or visit has been observed to lead to over-numerous visits and treatments and to an increase in costs. It also seems clear that in cases where both private and public health-care systems are in operation, the differential between the salaries paid to health care professionals in the public and private systems will prompt a shift in these human resources towards the private sector, thereby

driving up costs⁵ (WHO, 1993; Miranda, 1993b). The available data also indicate that contracts on a per-patient basis, "all-in" fees or "diagnosis groups" – unlike payments per consultation or visit – transfer the risk of rising costs from the financing agencies to the service providers, thereby obliging the latter to manage their resources more carefully. In such cases, incentives are generated for the control of any over-treatment or overbilling through the establishment of technical standards for medical/health-care functions, as well as the use of auditing and other *ex post* systems for monitoring results.

The quality and organization of medical care also appear to be associated with the three sets of variables discussed above. Unless appropriate health-care standards are established and treatment results are properly monitored, per-patient contracts, for example, when used solely as a mechanism for curbing costs, may lead to the under-provision of services and a deterioration in the quality of medical care.⁶

In a system where the public sector has prime responsibility for financing and providing health care, this line of reasoning suggests that whenever budgetary constraints become serious, wages decline and waiting times grow longer, informal markets are likely to emerge within public health-care agencies. In such cases, some members of the community – whether by virtue of their greater economic power or because of their urgent need for health care – will secure attention on a preferential basis in exchange for payments in kind or some sort of under-the-counter payment.⁷

The issues that arise in regard to microeconomic behaviour are of a different nature in mixed models of sectoral organization that are more open and pluralistic than their wholly public counterparts. In mixed models, members of the medical community may be expected to behave in ways that will influence, *inter alia*, the cost of services, the rate at which new technologies are introduced, the quality of medical care, and the way in which it is organized, and their influence may be stronger and more difficult to regulate than in a wholly public system.

⁵ Recent studies in Chile have brought to light situations of this sort. See, for example, Oyarzo (1992 and 1993).

⁶ This may take the form, for example, of a reduction in the time devoted to each patient or in the number post-operative examinations.

⁷ Examples of this type of informal market have been identified in studies on the health-care sector in the former socialist-bloc countries and, more recently, in countries such as Cuba and Costa Rica, to name only a few.

These three sets of variables –the rate of increase in the supply of new graduates and their make-up in terms of sex, location, degree of specialization, etc.; the nature of the health care sector's organizational model; and the payment procedures for medical services– will help to determine the size of the medical community's share in the total resources expended by society on health care. Moreover, they will also promote –or hinder– certain types of reactions on the part of that community.

In summary, the interaction of the above-mentioned variables and types of behaviour will determine what share of total income is received by health-care professionals. These types of behaviour are going to reflect idiosyncratic traits of each society, and each specific case will therefore have to be examined individually when designing and implementing public policy in this field. Thus, each country will need to address these complex issues

when seeking to design an institutional and regulatory framework that will reconcile doctors' and other health-care professionals' legitimate economic rights with the overall interests of society. The microeconomic effectiveness and efficiency of the health-care system will hinge upon the successful completion of this task.

2. The public and private hospital-services market

The supply of public and private hospital services also exhibits enormous differences in the various countries of the region (see table 3). In Argentina, Barbados, Cuba and Uruguay, there are about 6 hospital beds per 1 000 persons, while the figure is between 3.5 and 4.3 in Brazil, Chile and Venezuela and between 2 and 3 per 1 000 inhabitants in Honduras, Paraguay, Mexico and Colombia.

TABLE 3

Latin America and the Caribbean: Hospital beds per thousand persons, 1964-1991

| Latin America | 1964 | 1967 | 1974 | 1978 | 1984 | 1991 |
|--|------|------|------|------|------|------|
| <i>Andean area</i> | | | | | | |
| Bolivia (1991) ^a | 2.1 | 2.2 | 1.8 | 1.8 | 1.8 | 1.3 |
| Colombia (1989) | 2.7 | 2.4 | 1.9 | 1.7 | 1.8 | 1.4 |
| Ecuador (1991) | 1.9 | 2.4 | 2.1 | 2 | 1.9 | 1.6 |
| Peru (1992) ^b | 2.5 | 2.4 | 2 | 2.9 | 1.7 | 1.5 |
| Venezuela (1992) ^c | 3.3 | 3.2 | 2.9 | 2.7 | 2.7 | 2.6 |
| <i>Southern Cone</i> | | | | | | |
| Argentina (1992) ^d | 6 | 6.3 | 5.4 | 5.4 | 5.4 | 4.4 |
| Chile (1991) ^e | 4.3 | 4.4 | 3.6 | 3.6 | 2.9 | 3.2 |
| Paraguay (1991) ^f | 2.2 | 2 | 1.5 | 1.5 | 1.4 | 1.2 |
| Uruguay (1991) ^g | 6.4 | 6.4 | 5.7 | 5.2 | 5 | 4.4 |
| Brazil ^h | 3.4 | 3.8 | 3.8 | 3.8 | 3.6 | 3.5 |
| <i>Central America and Mexico</i> | | | | | | |
| Belize (1989) ⁱ | 4.9 | 4.9 | 4.6 | 3.2 | 2.5 | 2.2 |
| Costa Rica (1991) | 4.5 | 3.8 | 3.8 | 3.1 | 2.9 | 2.2 |
| El Salvador (1992) ^j | 2.3 | 2.2 | 1.8 | 1.8 | 1.3 | 1.6 |
| Guatemala (1989) ^k | 2.6 | 2.5 | 2 | 1.6 | 1.6 | 1.6 |
| Honduras (1992) | 2 | 1.7 | 1.7 | 1.3 | 0.9 | 1.1 |
| Nicaragua (1991) | 2.3 | 2.3 | 2.2 | 1.6 | 1.6 | 1.2 |
| Panama (1991) | 3.2 | 3.3 | 3.2 | 3.9 | 3.6 | 2.7 |
| Mexico (1991) ^l | 2.2 | 2 | 1.2 | 0.9 | 0.8 | 0.8 |
| <i>"Latin" Caribbean</i> | | | | | | |
| Cuba (1991) | 5.5 | 4.8 | 4.2 | 4 | 6.1 | 6 |
| Haiti (1992) | 0.7 | 0.7 | 0.7 | 0.8 | 1 | 0.8 |
| Dominican Republic (1992) ^m | 2.7 | 2.8 | 2.8 | 2 | 1.2 | 1.9 |

TABLE 3 (continued)

| Latin America | 1964 | 1967 | 1974 | 1978 | 1984 | 1991 |
|--|------|------|------|------|------|------|
| <i>Rest of Caribbean</i> | | | | | | |
| Anguilla (1991) | ... | ... | ... | ... | ... | 2.7 |
| Antigua and Barbuda | 7.2 | 7 | 5.8 | 6.3 | 5.8 | ... |
| Netherlands Antilles and Aruba (1992) ⁿ | ... | ... | ... | ... | ... | 7.6 |
| Bahamas (1991) ^o | 5.5 | 4.9 | 3.9 | 4.3 | 4.1 | 4 |
| Barbados (1990) ^p | 5.8 | 10.4 | 8.7 | 8.7 | 8 | 8.1 |
| Dominica (1992) ^q | 4.9 | 4.5 | 4.3 | 3 | 3 | 3.3 |
| Grenada (1991) ^r | 6.9 | 6.9 | 7.5 | 8.6 | 9 | 6.6 |
| Guadeloupe | ... | ... | ... | ... | ... | ... |
| French Guiana | ... | ... | ... | ... | ... | ... |
| Guyana ^s | 5.4 | 4.6 | 4.3 | 4.5 | 1.5 | ... |
| Cayman Islands (1991) | ... | ... | ... | ... | ... | 2.6 |
| Turks and Caicos Islands (1992) | ... | ... | ... | ... | ... | 2.9 |
| U. S. Virgin Islands | ... | ... | ... | ... | ... | ... |
| British Virgin Islands (1991) ^t | 4.3 | 4.3 | 3.6 | 3.5 | 4.7 | 3.5 |
| Jamaica (1991) ^u | 4 | 3.7 | 3.8 | 2.4 | 2.6 | 2.2 |
| Martinique | ... | ... | ... | ... | ... | ... |
| Montserrat (1990) | 5.3 | 4.9 | 4.7 | 5.1 | 5.7 | 4.8 |
| St. Kitts and Nevis (1992) ^v | 3.4 | 4 | 4.3 | 5.6 | 5.8 | 6.6 |
| St. Vincent and the Grenadines (1991) ^w | 4.4 | 4.4 | 5.4 | 5.1 | 4.9 | 4.4 |
| St. Lucia (1992) ^x | 4.7 | 4.8 | 5.2 | 4.4 | 3.8 | 3.7 |
| Suriname (1989) ^y | 5.2 | 5.3 | 5.4 | 5.8 | 5.4 | 3.2 |
| Trinidad and Tobago (1992) ^z | 5.3 | 5.1 | 4.5 | 4.1 | 4.8 | 3.3 |

Source: Country reports, Pan-American Health Organization (PAHO)/World Health Organization (WHO), *Health Conditions in the Americas, 1969-1972*, Scientific Publication No. 287, 1974; *Health Conditions in the Americas, 1973-1976*, Scientific Publication No. 364, 1978; *Health Conditions in the Americas, 1977-1980*, Scientific Publication No. 427, 1982; and *Health Conditions in the Americas, 1981-1984*, vols. I and II, Scientific Publication No. 500, 1986, Washington, D.C.

^a Beds in all facilities (Directorio Nacional de Hospitales de Bolivia). Figures for the Ministry of Health and the Social Security system only (5 096 and 2 591 beds, respectively).

^b Data for the Ministry of Health and the Social Security system only (26 012 and 6 929 beds, respectively).

^c Beds in all facilities. Data for the Ministry of Health only (26 867 beds).

^d Total number of beds according to 1980 census. Data for government subsector only (75 822 available beds, on average) (*Boletín del Programa Nacional de Estadísticas de Salud*, No. 67, 1993).

^e Beds in all facilities (*Anuario de Atenciones y Recursos*, 1991; *Anuario de Egresos Hospitalarios*, 1991).

^f Beds in all facilities (*Anuario Estadístico del Paraguay*, 1991).

^g Beds in all facilities. Figures for short-stay beds in the public sector only.

^h Beds in all public and private facilities, 1989 (11 530 in public sector and 403 365 in private sector).

ⁱ Does not include data for two private hospitals.

^j Beds in all facilities. Use shown for Medical Service.

^k Beds in all facilities at third level only.

^l Data for National Health System only.

^m Beds in all facilities. Data for public sector only (301 beds).

ⁿ Data for general-purpose beds only. Data for Aruba only (301 beds).

^o Beds in all hospitals. Data for short-stay hospitals in the public sector only (540 beds).

^p Beds in all facilities. Data for Queen Elizabeth Hospital only (539 beds).

^q Beds in all facilities. Data for Princess Margaret Hospital only (195 beds).

^r Beds in all hospitals. Data for three general hospitals only (349 beds).

^s Only reports that the country has 24 hospitals.

^t Data for public and private hospitals. Use shown for public hospital only (50 beds).

^u Beds in all facilities. Data for government-run hospitals only (5 078 beds).

^v Beds in all hospitals. Data for J.N. France and Pogson hospitals only (174 and 38 beds, respectively).

^w Beds in all hospitals. Data for Kingston General Hospital only (207 beds).

^x Beds in all facilities. Data for Victoria and St. Jude hospitals only (184 and 114 beds, respectively).

^y Beds in all facilities. Data for the four general hospitals in Paramaribo only (1 213 beds).

^z Beds in all facilities. Data for public general hospitals only (1 936 beds). Provisional data.

There is no doubt about the fact that most of the available hospital infrastructure in the region is government-owned (see table 4), but private-sector infrastructure is growing the fastest in the majority of the countries. In more than a few cases, in fact, it is the only segment that is growing at all, given the serious financial crisis that has hit both central governments and social security institutions during the past 10 years.⁸ The share of total hospital infrastructure owned by the private sector varies sharply from one country to the next, ranging from a negligible proportion in, for example, Costa Rica, the English-speaking Caribbean countries and Cuba all the way up to nearly 75% of the total number of available beds in Brazil. The average is around 24% in Chile, 32% in Argentina, 20% in Peru and 21% of total hospital beds in Venezuela. In Costa Rica, Mexico and, to a lesser extent, Colombia, the social security system administers a significant share of the available hospital capacity.

Even though they offer services which in many ways could be substituted for one another, private and public hospitals exhibit very different organizational models as regards medical attention and health care. In mixed sectoral organization models, there is a tendency towards the consolidation of two largely separate structural frameworks that offer services of different quality and technical complexity. In such cases, public hospitals take care of most of the chronic pathologies (which give little or no profit) while private hospitals tend to specialize in acute pathologies and to use highly complex technologies, such as CAT scanners, gammagraphs, nuclear magnetic resonance imaging, etc.

This gradually gives rise to a dual model of public and private hospital care whereby doctors work in both systems but do so in accordance with two very different codes of conduct. Whereas in public hospitals the main priorities are research, teaching and curricular development, in private hospitals pecuniary considerations are clearly the chief motive. These two spheres of action also interact in some respects, of course. It is not uncommon for patients to consult doctors on a private basis, with the corresponding fees being paid by the social security system or health

TABLE 4

**Latin America and the Caribbean (18 countries):
Hospital beds in the public and private sectors,
around 1990
(Percentages)**

| Country | Public sector | Private sector |
|-------------------------|---------------|----------------|
| Argentina | 68 | 32 |
| Bahamas | 89 | 11 |
| Barbados ^a | 98 | 2 |
| Bolivia | 84 | 16 |
| Brazil | 25 | 75 |
| Colombia ^a | 80 | 20 |
| Costa Rica ^a | 98 | 2 |
| Cuba ^a | 100 | - |
| Chile | 76 | 24 |
| Ecuador ^a | 70.4 | 29.6 |
| Guatemala | 82 | 18 |
| Honduras ^a | 76 | 24 |
| Jamaica ^a | 94 | 6 |
| Panama ^a | 87.2 | 12.8 |
| Peru ^b | 80.4 | 19.6 |
| Dominican Republic | 63 | 37 |
| Uruguay ^c | 72.3 | 27.7 |
| Venezuela | 79.48 | 20.52 |

Source: Pan-American Health Organization (PAHO)/World Health Organization (WHO), *Health Conditions in the Americas, 1985-1989*, Washington D.C. and data from lists compiled by health-care systems in Latin America and the Caribbean.

^a Data for 1991.

^b Data for 1992.

^c Data for 1989.

insurance policies or simply coming out of the patient's own pocket, but if those patients need hospitalization, then their treatment and stay in hospital are covered by the public system free of charge. These forms of public-sector subsidization of private health care represent a substantial sum. Chile and Argentina provide clear examples of this phenomenon.

Another example of the interconnections between these dual models is when doctors refer patients in the public system to private health-care institutions. This practice enables medical professionals to expand the demand for their services in the case of patients who can afford to pay for more convenient and efficient care in more comfortable surroundings. The frequency of this practice appears to coincide with the amount of private hospital infrastructure that is owned by medical professionals or with their involvement in other types of commercial arrangements which enable them to share in the income thus generated. In addition to the obvious conflicts of interest existing in such a situation, this

⁸ During the 1970s and 1980s, the number of hospital beds in government-owned institutions fell from 100 000 to 93 000 in Argentina and from 14 000 to slightly over 8 000 in Uruguay (PAHO, 1993).

practice also interferes with any cost-recovery measures or redistributive mechanisms implemented in the public sector.

Cost-recovery mechanisms are coming into increasing use in the region's public sectors as a means of obtaining financing directly from users and, in some cases, for redistributive purposes.⁹ The medical profession has not always welcomed these types of measures, since they raise greater administrative demands and make it necessary to improve record-keeping and monitoring systems. Indeed, because they do not always afford benefits –pecuniary or otherwise– to the medical professionals involved, the disincentives for such professionals to cooperate with these schemes are so great that they are often difficult to surmount and may ultimately block efforts to implement cost-recovery policies in the public sector.

Payment procedures, which may take any of the forms discussed earlier, have a significant influence on the conduct of health-care providers, just as they do in the case of the medical-services market. In most of the countries' public health care systems, the predominant modes of payment are still based on *ex post* budgetary transfers. Some use has been made, however, of partial transfers based on per-visit payments in Chile (both in public institutions and those that have been transferred over to the municipalities) and in Brazil, where comprehensive tariffs have been employed. It could be argued that the influence exerted by payment procedures in these cases does not differ in any substantial way from what it is in the private sector, although it will be less marked, since production efficiency and the generation of surpluses are generally not prime objectives of the public health care system.

The effect of the contractual payment arrangements made between funding agencies and private health establishments is a more complex question. Obviously, the types of arrangements used will have a strong influence on the cost and quality of health care, on the pace of technological change and on whether or not health-care providers will be inclined to engage in product-differentiating practices and to introduce highly complex medical technologies. These practices and the use of such technologies are the most obviously profitable activities, and this fact

tends to promote the consolidation of an increasingly "medicalized" health-care model which is broken up into many different clinical specialities and sub-specialities.

3. The pharmaceutical market

The region's pharmaceutical market exhibits striking variations in terms of both supply –production plus imports of pharmaceuticals– and demand. Let us first consider the question of demand.

At one extreme, there is the case of Argentina, where consumption of medicines amounts to around US\$80 per person annually, based on retail (pharmacy) prices. This is close to the figure registered for countries such as Spain or Portugal and is in marked contrast to the US\$12 or 14 spent in Peru, Mexico or Costa Rica or the US\$7 spent in Guatemala.¹⁰

Theoretically, the demand for pharmaceuticals is determined by their prices and the regulatory model used by a given society, by the population's epidemiological profile, by the prevailing financing models used in the society in question (i.e., how much of the cost is covered by social security and how much is an out-of-pocket expense), by cultural factors (e.g., the population's attitude towards the use of "self-prescribed" medicines), etc.

Thus, with regard to just one of the above-mentioned variables, recent studies conducted in Europe have shown that the financing mechanisms prevailing in a given society have a significant impact on the level and composition of the demand for pharmaceuticals. In some countries of the European Community, social security covers up to 100% of the cost of medicines that appear on what is known as a "positive list" of items which are reimbursable to the purchaser. In other cases, a "negative list" is used instead, which indicates those items (treatment categories or specific products) for which no reimbursement will be made. There are in fact a great variety of different types of arrangements in use in Europe (see table 5).

¹⁰ These figures should be regarded with some reservations, however, since they are based on very different prices in different countries, even in the case of similar medicines. A more accurate measurement might be the actual number of units sold annually. In Argentina –where the physical volume sold per year totals about 400 million units– the average consumer has access to approximately 15 units per year. Using the same methodology, we find that physical consumption amounts to between seven and nine physical units per year in Chile, Venezuela, Brazil and Colombia.

⁹ Redistributive aims are served when the percentage of the benefits paid for by the user is determined by the user's income level.

TABLE 5

**European Community: Financing mechanisms for pharmaceuticals,
and co-payment percentages**

| | Positive list of medicines ^a | Negative list of medicines ^b | Prevailing co-payment system (% of pharmacy price) | Percentage covered by patient | Use of generics encouraged |
|----------------|---|---|--|-------------------------------------|----------------------------------|
| Germany | No | Yes | Flat charge | 25 | Strongly |
| Denmark | Yes | No | 25/50/100 | 33 | Yes |
| France | Yes | No | 0/30/60/100 | 30 | Yes ^a |
| Belgium | Yes | Yes | 0/25/50/60 | 35 | Yes ^a |
| Greece | Yes | No | 20 | ... | Yes |
| Ireland | No | Yes | Varies by type of patient | ... | Yes |
| Italy | Yes | No | 30 or 40 | 32 | Yes ^c |
| Netherlands | No | Yes | Flat charge | 20 | Strongly |
| Portugal | Yes | No | 0/20/50 | 25 | Yes |
| Spain | Yes | Yes | 40 | 25 | Yes |
| United Kingdom | No | Yes | Flat charge | 10 | Strongly |

Source: M. L. Burstall, Europe after 1992. Implications for pharmaceuticals, *Health Affairs*, Washington, D.C., Fall 1991, p. 157.

^a Medicines which are reimbursable.

^b Medicines which are not reimbursable.

^c With some reservations.

The existence or absence of officially controlled pharmaceutical prices also influences demand. Until lately, the prices of pharmaceuticals were controlled in many Latin American countries; recently, however, drug prices have been deregulated in Argentina and Mexico, among other countries. In the last few years the prices of pharmaceuticals have risen sharply in real terms in the various countries that have deregulated this market (see table 6), and the amount spent on this item has therefore come to represent a considerably larger share of household expenditure and total health-care expenditure.¹¹

Social security institutions' reaction to this trend has been to try to curb the growth in pharmaceutical costs as a percentage of total health-care expenditure by lowering the percentage of such expenses that they will reimburse, reducing their coverage of expenditures on pharmaceuticals, or drawing up special pharmacopoeias or basic lists of generic medicines for which the patient will be reimbursed.

¹¹ In a recent study of the Mexican pharmaceutical market, Brodosky indicates that the average consumer price was \$0.92 in 1988 and US\$2.60 in 1993, which is a real increase of over 200%. The same thing has occurred in Argentina, where the price jumped from US\$2.50 in 1984 to nearly US\$6 per unit in 1992 (see Brodosky, 1994; Katz and Burachik, 1992).

Turning now to the subject of supply, at least three main types of situations may be identified in the region (see table 7). First, there are countries such as Mexico, Argentina or Brazil, where almost all final pharmaceutical products consumed in the country and between 10% and 40%, approximately, of the main active ingredients or raw materials used by the pharmaceutical industry are manufactured locally. A second group of countries (Chile, Colombia) manufacture a large percentage of the remedies sold on the domestic market but as yet have virtually no local manufacturers of pharmaceutical raw materials, almost all of which must therefore be imported. Finally, the third group is made up of the smaller or less developed countries in which a very considerable portion of final pharmaceutical products are direct imports and raw materials for this industry are not produced locally. These three types of situations obviously raise very different sorts of public-policy issues.

In the first of these three cases, in addition to the question of consumer protection (the prices and quality of the pharmaceuticals sold on the local market), industrial-policy issues must also be addressed, since it has to be determined whether or not it is in the country's interest to develop a local pharmaceutical chemicals industry and, if so, how much support should be given to that industry until it can attain a competitive position in the international market.

TABLE 6

Latin America (selected countries): Average price per unit^a of medicine, 1988-1992
(US dollars)

| | 1988 | 1989 | 1990 | 1991 | 1992 |
|--------------------|------|------|------|------|------|
| Argentina | 2.71 | 2.26 | 3.71 | 4.58 | 5.34 |
| Dominican Republic | 2.41 | 2.87 | 2.97 | 3.79 | 4.03 |
| Central America | 2.98 | 3.01 | 2.82 | 3.00 | 3.26 |
| Uruguay | 1.70 | 1.73 | 2.00 | 2.43 | 3.04 |
| Peru | 0.96 | 1.24 | 2.21 | 2.55 | 2.89 |
| Chile | 1.56 | 1.75 | 1.99 | 2.19 | 2.51 |
| Mexico | 1.39 | 1.50 | 1.62 | 1.94 | 2.41 |
| Ecuador | 0.74 | 1.00 | 1.09 | 1.64 | 2.27 |
| Brazil | 1.22 | 1.32 | 1.86 | 1.46 | 2.11 |
| Colombia | 1.30 | 1.47 | 1.57 | 1.71 | 2.07 |
| Venezuela | 0.62 | 1.01 | 1.43 | 1.63 | 1.81 |
| Average | 1.44 | 1.51 | 1.96 | 2.14 | 2.73 |
| Increase (%) | 9.1 | 4.9 | 29.8 | 9.2 | 27.6 |

Source: IMS AG, *PM Reports*, Switzerland, International Medical Statistics, 1993.

^a Box or other equivalent container.

TABLE 7

Latin America (12 countries): Structure of the supply of pharmaceuticals, around 1987
(In thousands of dollars and percentages)

| Country | Total market ^a (thousands of current dollars) | Share ^b (percentages) | |
|-------------|---|--|--|
| | | Local output as a percentage of the total market | Relative share of locally-owned laboratories |
| Argentina | 1 038 878 | 95.0 | 56.6 |
| Brazil | 1 977 878 | 83.2 | 24.5 |
| Colombia | 482 000 | ... | 25.0 |
| Costa Rica | 51 000 | 26.0 | 20.0 |
| Chile | 132 000 | 51.0 | 43.0 |
| El Salvador | 45 000 | ... | ... |
| Mexico | 1 277 000 | 96.7 | 24.0 |
| Panama | 58 000 | 25.5 | 9.5 |
| Paraguay | 75 000 | 85.6 | 63.4 |
| Peru | 179 072 | ... | 27.0 |
| Uruguay | 102 000 | ... | 48.4 |
| Venezuela | 206 684 | 95.5 | 23.0 |

Source: Pan-American Health Organization (PAHO/WHO), *Informe de la Conferencia latinoamericana sobre aspectos económicos y financieros de los medicamentos esenciales*, Caracas, March 1992.

^a At wholesale ex-factory prices.

^b Percentages of total value.

Two crucial factors in determining the viability of any effort to develop such an industry are the type of industrial property legislation which a country decides to adopt – laws that allow or prohibit the patenting of pharmaceutical products, that introduce or preclude the compulsory licensing of newly discovered molecules of pharmaceutical value, that permit or ban the importation of finished products or of the raw materials used to make the corresponding active ingredients, that precisely specify what constitutes “sufficient” use of a patent, etc. – and the issues inherent in the training of the

skilled human resources (biologists, pharmacologists, virologists, etc.) needed in order to develop a local industry to produce active pharmaceutical ingredients.¹²

¹² It is interesting to recall that for many years countries such as Switzerland, Japan and Italy did not allow pharmaceuticals to be patented, in order to protect their national chemical industries. It was not until these industries had become internationally competitive that the above countries signed the 1883 Paris Convention for the Protection of Industrial Property and began to abide by internationally-accepted norms regarding industrial property (Katz, 1972 and 1974).

With the exception of countries such as Argentina and Chile, where locally-owned companies control a substantial portion of the local pharmaceuticals market, transnational corporations dominate the pharmaceutical industry; in fact, they hold nearly 80% of the total market in Brazil, Mexico, Peru and Venezuela.

The combined effect of the decontrol of drug prices, the tariff roll-backs now being implemented and the modifications being made in the laws regarding the patenting of pharmaceuticals is bringing about a radical change in the environment for the pharmaceuticals market in many countries of the region. These countries have once again become extremely attractive to foreign-owned firms which had lost interest in them during the past two decades (Brodosky, 1994; Katz and Burachik, 1992).

Meanwhile, the new institutional and regulatory framework is diminishing the incentives for the independent development of locally-owned pharmaceutical companies; as the situation stands now, it is in their interests to operate as local licensees of large transnational conglomerates while taking advantage of their own firmly-established distribution channels in the markets of the region and their expertise in working with the local medical community. The industry's *modus operandi* is undergoing thoroughgoing changes and the position of the region's major pharmaceutical laboratories is being redefined under new cooperation agreements with transnational firms.

The situation is somewhat different in the case of the production of pharmaceutical raw materials – a field in which local entrepreneurs in Mexico, Brazil and Argentina had, until recently, made major inroads by swiftly copying newly discovered molecules of pharmaceutical value. They were able to do so because of the existence of weak patent laws that did not protect the patent rights to new products, protective tariffs that made it possible for these entrepreneurs to manufacture active ingredients in small-scale plants, and a system of granting permits for the marketing of new medicines which was strongly biased in their favour.

The core group of locally-owned firms that managed to establish their position during the past three decades thanks to the nature of the prevailing regulatory apparatus now appear to be facing a serious threat to their survival. Given the programmes now being pursued in an effort to open up and liberalize the countries' economies and the new views concern-

ing industrial property that are gaining sway in the region as a result of the strong pressure being brought to bear by developed countries within the framework of GATT (Reichman, 1993), it has become doubtful whether national entrepreneurs will be able to continue developing this industry by quickly producing copies of molecules of pharmaceutical value that have recently been discovered in advanced countries and then manufacturing these substances locally in small, multi-purpose chemical plants.

The very high research and development costs associated with the search for new active ingredients, the possibility of patenting new products, the reduction of tariff barriers which until recently had made it profitable to produce pharmaceutical raw materials locally and, finally, the discontinuation of the privileges that local health authorities often used to grant to local manufacturers (whereby the latter were given preferential access to marketing permits) are now raising some doubts about the future of local pharmaceutical-chemicals industries. Thus, the newly-established institutional and regulatory structure is virtually eliminating the very pillars upon which the development of locally-owned firms was founded in past decades and is thereby bringing about deep-seated changes in the long-term pattern of sectoral behaviour.

Having thus far examined some of the micro-economic characteristics affecting the performance of the markets for the main types of goods and services used in the health-care sector, the next step is to consider the way in which these markets fit in with each other and the implications of that interdependence in terms of the sector's overall performance, its efficiency and effectiveness, and the chances of ensuring equitable access to that sector.

4. Market interdependence

The markets for the goods and services required for the care and restoration of a given population's health exhibit many complex forms of interdependence. For example, childbirth may involve a smaller hospital bill if the patient has received adequate prenatal care on an outpatient basis, or alternatively – if the attending physician decides to perform a cesarean delivery – may occasion a higher level of expenditure for hospitalization and medicines. Such a decision may be taken for therapeutic reasons, but it may also, for example, be adopted because doctors feel that this

procedure will allow them to optimize their use of their workday by avoiding long waiting periods. It may also be taken because the standard fee for a cesarean delivery is higher than for a normal vaginal delivery. Examples of this sort abound, and there is no need to give a long list of such cases here.

The foregoing considerations make it clear that many of the goods and services traded in the health-care sector can be substituted for one another to varying degrees; therefore, the relative price structure works as a powerful mechanism for the redistribution of the available pool of resources among suppliers. Thus, for example, the ratio between doctors' fees and hospital fees as well as between hospital fees and the price of medicines should be viewed as channels for income transfers among the various markets and, within those markets, among the various suppliers. It is therefore not surprising that these issues play a central role in the negotiations conducted among ministries of public health, social security systems, professional associations, business associations representing pharmaceutical laboratories, health schemes, etc.

The structure established by each society for regulating health care must naturally address these questions, because they are of crucial importance in determining the performance of the model used for

the provision of health care services; indeed, they are the main determinants of the system's efficiency, effectiveness and social equity.

There is also another area in which market interdependence is very noteworthy. Recent studies appear to indicate that a given consumer of health-care services will not always behave solely as either a patient under the social security system or a patient under the public sector's health-care system. Instead, patients will tend to mix and match their various options in this regard in order to maximize the level of goods and services they receive from the system (as noted by Lastiri in a personal letter to J. Katz on the subject). For example, people who belong to one of Chile's private health insurance schemes may pay for outpatient care through their private insurance plan but may opt for hospitalization under the public health system (concealing their membership in a private insurance plan) in order to obtain this more complex and costly type of care and the corresponding prescription medicines free of charge.¹³ This points up the existence of interdependence and cross-subsidization between the public and private sectors; therefore, in order to gain a full understanding of how the sector functions, we must form an overall picture that takes in both subsectors, rather than treating them as entirely distinct entities.

III

Future strategies and regulatory policies

1. Active and passive health-care policies

There are two very different approaches to public policy-making in the field of health care today. On the one hand, there is what might be called active policies for altering the public/private financing and service mix. On the other, there are innumerable cases in which the sector has been "passively" restructured as a result of the absence of any explicit public policies regarding the organization and behaviour of suppliers of goods and services in health-care markets.

In the latter case, the restructuring and organization of these markets is an autonomous market response,¹⁴ and these phenomena are bringing about sweeping changes in the workings of the pharmaceu-

ticals market, the rate at which medical professionals and other agents are switching from the public to the private sector, growth rates, the private health-care infrastructure's level of complexity, etc.

¹³ Interviews conducted in public hospitals in Chile and Argentina indicate that between 20% and 25% of the patients receiving care under the public health-care system (which requires an extremely small co-payment) are covered by private health insurance plans (ISAPRES), in the case of Chile, or by the National Social Security System, in the case of Argentina. These people simply decide not to reveal their membership in such plans in order to obtain free of charge inputs or services not covered by their private or quasi-State health plans. This practice clearly involves a sizeable hidden subsidy for the private sector.

¹⁴ This type of market development has given rise to what the recent literature refers to as new organizational forms (see PAHO/ECLAC, 1994, pp. 39-51).

Since this restructuring of the sector's organizational model is taking place under highly imperfect market conditions, it should come as no surprise that it is creating many new problems in terms of micro-economic efficiency and distributive equity of the type discussed earlier. These problems tend to arise even in countries that have pursued an active sectoral restructuring process, such as Chile (Miranda, 1993a and 1990), so it is even more likely that they will arise in situations where the State adopts a passive attitude. Rising costs, inequitable access, the consolidation of a model that concentrates too much on the individual and curative aspects of health care to the detriment of a community-based, preventive approach, the dualization of the model for the provision of services, etc. are some of the hazards that will almost surely arise in the course of the passive type of sectoral reorganization process that occurs in situations where no appropriate programme is being followed by health-care authorities or the authorities responsible for the overall operation of the economy.

In order to counter these "natural" tendencies, governmental authorities need to pursue an active, consistent health-care policy that is attuned to the particular features of each society and the determinants that arise out of its past evolution. Such an active health-care policy must address the issues posed by the existence of these different markets, as noted in the foregoing discussion. In the following section we will identify some of the main issues that will need to be confronted by health-care policy in the coming years.

2. Health-care policy in the area of medical services

As explained in section 1 of part II, the way in which the medical-services market works is heavily influenced by both supply- and demand-side variables. In relation to supply, one particularly important question is how the market's operation is affected by the rate at which new professionals enter the market and the differing degrees of saturation, in relative terms, exhibited by these markets in the various countries of the region. In turn, the entry of new professionals into the market is determined by the growth rate of university enrolment, the degree of specialization, the location and sex of the human resources involved, and the nature of the educational system in which health-care professionals are trained.

In practice, the educational system plays a fundamental role by determining how many students will enter a formal course of instruction from year to year, the quality of the education provided, and the nature of the attitudes and ideologies regarding medical and other forms of health care which these new graduates bring with them as they embark upon their careers.

On the demand side, the market is becoming populated by a vast and growing array of user institutions, which may be public, private or part of the social security system. This fragmentation and the failure to coordinate services within a unified health-care system are leading to the increasing consolidation of a dual model for the organization of medical and health-care services which is ridden with flaws and glaring disparities between the various occupational categories in terms of quality, microeconomic efficiency and social equity.

This fragmentation and lack of coordination among the public, private and social-security sectors is one of the main issues which health-care policy needs to address. From this standpoint, there is an evident need for some sort of explicit programming of the sector as a whole by the central authority.

Accordingly, in relation to both the supply and the demand for health-care professionals, public policy should address the issues entailed in respect of the rate of entry, qualifications and geographic location of new graduates as well as all the questions that have to do with the conditions under which these professionals enter into the three occupational spheres mentioned above. Thus, university entrance examinations, the nature and duration of medical residencies, and requirements as regards specialization and professional accreditation should all be adapted to conform to projected needs in terms of public, private and social-security health-care infrastructure in each country.

The establishment of regulatory guidelines for health-care services, quality standards and payments procedures based on results rather than the number of consultations should help to reduce the blatant disparities to be observed today in the health-care model in each of the three above-mentioned spheres.

The development of family-centered medical programmes, together with an increase in primary health care in general, could serve as a means of rationalizing access to the health care system in order to make better use of available resources and to alter

the strong trend towards curative (as opposed to preventive) medicine and towards the "medicalization" of services.

3. Health-care policy regarding public and private hospital services

The need to counteract the trends observed in this area and their harmful effects, as well as to mitigate and correct the increasing "dualization" of the hospital services provided in the public and private systems, points up the advisability of establishing guidelines for hospitalization in public and private health-care systems and clear-cut procedures for cross-referencing patients in public and private institutions in order to avoid the duplication of expensive equipment and the inefficient use of complex technologies requiring large investments. Existing budgetary mechanisms for financial transfers also need to be evaluated, as do the relative merits of per-visit payment modalities versus results-based payment procedures (e.g., payments per patient, comprehensive tariffs or payment based on "diagnosis groups").¹⁵

In short, in order to create a true network of public/private hospital services, hospital infrastructure in both sectors needs to be programmed and patient cross-referral procedures need to be set up in order to avoid the unnecessary duplication of sophisticated instruments and equipment, inefficient use of hospital beds, etc.

The administrative decentralization of public health care should be an important component of the programme for linking up existing public and private hospital infrastructure. There also appears to be a need for the wider spread of administrative and management technologies for optimizing the use of that infrastructure.

The anarchic manner in which the incorporation of expensive, highly sophisticated technology has taken place in many countries of the region shows up the need for the establishment of nation-wide mechanisms and standards for controlling the pace at which such equipment is brought into a country,

achieving its balanced distribution in the public and private systems, ensuring its proper maintenance and regulating its use. It may be instructive to compare the tight controls used by health-care authorities in many developed countries¹⁶ with the random, socially costly nature of this process in many countries of the region.

This situation raises questions as to the true regulatory capacity of the typical Latin American State and the extent to which it is actually capable of performing this task. It is not simply a matter of the State's ability to regulate these activities, but also involves the broader issues posed by an institutional, legal and regulatory overhaul of the entire health-care system. This is an issue that affects each and every country in the region.

4. Health-care policy and industrial policy as it relates to pharmaceuticals

What is the "proper" level of pharmaceutical consumption which a society should seek to reach? How much of that demand should be covered by brand-name products and how much by generics? What percentage of that demand can locally-owned companies reasonably be expected to meet, and how much needs to be supplied by transnational corporations? And at what prices? How much financing should be provided by the social security system, the State or private insurance plans as opposed to direct payments out of the patient's own pocket?

These questions have to be answered by the health-care and economic authorities of each of our countries, just as each country is also faced with the task of designing and implementing a national policy on pharmaceuticals which is in keeping with the conditions peculiar to each country's situation.

So far, before a new pharmaceutical drug can be marketed, the company holding the rights to the drug has been required to prove the safety and effectiveness of its active ingredient in order to obtain the necessary permit from the relevant health-care authority. The current advocacy of measures for holding down costs has prompted a number of Governments to speed up the procedures for authorizing

¹⁵ Data for the United States show that the change in payment procedures has had two main effects: a reduction in the average hospital stay per patient and a decrease in admission rates. The latter is attributable to an increase in outpatient care, for which Medicare continued to pay on a per-visit basis (Pauly, 1987).

¹⁶ Regarding the situation in seven European countries, see Miranda (1993c).

the sale of generic drugs and to add in the requirement that proof be provided of the active ingredients' cost effectiveness before their sale will be permitted. Australia, for example, recently established a mechanism of this type, and its experience suggests that consideration might be given to the introduction of a similar scheme in the region at some future date.¹⁷

Expanding the supply of generics is another effective way of holding down costs. To this end, an information campaign aimed at doctors, pharmacists and consumers should be mounted and regulatory provisions should be established that will authorize pharmacists to substitute generics for brand-name products when their prices and the patient's characteristics so permit. Legislation passed in the United States in 1984 represented quite a substantial step in this direction.

The social security system as well as finance and insurance institutions also need to adopt financial protocols that will give priority to and increase reimbursements for the use of generic medicines. The more rapid issue of certificates authorizing the sale of these types of products is another kind of public policy measure which health authorities in a number of developed countries have implemented in recent years with a fair degree of success but which has not yet been used to any significant extent in the region.¹⁸

The pharmaceuticals market also raises a number of other issues, however, that go beyond the question of the price and quality of the products sold. These include the complicated issues of industrial property and patents, as well as those having to do with the dynamic comparative advantages that may be associated with the development of a sizeable

local pharmaceutical chemicals industry. This area also involves a number of complex questions in the sphere of international relations which are raised by the 1883 Paris Convention's provisions regarding patent protection and the equal treatment of nationals and foreigners, since many countries of the region are signatories of that treaty.

In this respect the countries are faced with a variety of political issues which will not be easy to solve. One of these issues has to do with the pressure which the Department of State and the Department of Commerce of the United States have been bringing to bear on a number of countries in the region (Argentina, Brazil, Chile and Mexico, among others) and in international forums such as UNCTAD and GATT throughout the last ten years in order to convince them to strengthen their patent laws. The objectives here are to enforce international patent provisions relating to pharmaceuticals—which affect the very process of innovation, i.e., the innovative pipeline—and, more generally, to fortify the market position of transnational laboratories, which in the past have faced competition from local companies in the markets for both finished pharmaceutical products and pharmaceutical raw materials.

Countries that now have mature pharmaceutical and pharmaceutical chemicals industries, such as Switzerland, Japan and Italy, chose not to comply with demands for patent enforcement for many decades; it was not until they felt that their local firms had reached a point in their development where they could compete on the international market that they decided to become a party to international treaties on the subject (Penrose, 1951). Today, however, a similar course of action is a very remote possibility indeed, given the contemporary international scene and the conditionality associated with the international financing of many Latin American countries' macro-economic adjustment programmes.

It would therefore appear that the privileges once enjoyed by local pharmaceutical-chemicals and pharmaceutical industries in the region have become untenable. Therefore, the possibility of implementing an industrial policy aimed at generating dynamic comparative advantages in these areas warrants, at the very least, explicit discussion by technical and political experts in each society.

¹⁷ Since January 1993, any application for the authorization of a new drug has to be accompanied not only by the results of clinical pharmacological tests—to prove its safety and effectiveness—but also by an assessment of its economic impact. This assessment must be based on comparisons with alternative treatments and must not only cover the price of the drug itself, but also contain a comparison of its effects with those of other procedures for resolving the same clinical condition, including lengths of hospital stays and other complementary services entailed in the alternative therapies to be evaluated (*Financial Times*, 1994).

¹⁸ See the case of the United States in Olson (1991a).

IV

Concluding remarks

Within the overall context of the liberalization and privatization of economic activity that have taken place in the past decade, there would appear to be little question but that the deregulation of health-care markets, the extension of the use of patents to pharmaceuticals and the gradual privatization of the financing and provision of health-care services are the *desideratum* of economic policy in the health-care sector. It is taken for granted that free markets and freedom of choice for consumers will inevitably lead to greater microeconomic efficiency, more effective services and improved access to health care.

In the area of pharmaceuticals, however, empirical evidence indicates that the elimination of price controls has been associated with sharp price increases in recent years. The reduction of tariffs and the establishment of new ground rules regarding patents have prompted many Argentine, Brazilian and Mexican firms to suspend local production—even of products that they had been exporting—and to become local licensees of transnational corporations. This has also led to the abandonment of research and development efforts and of work in the area of process adaptation and improvement.

In the field of medical and hospital services, the deregulation and the gradual formalization and development of these markets have encouraged medical professionals to switch from the public to the private sector, and this shift has been associated with skyrocketing prices. Furthermore, these changes have brought out the potential flaws of health-care markets by setting the stage for forms of behaviour that permit providers to boost the demand for their own services, perform unnecessary health-care services and induce overconsumption. In addition, the expansion

of supply has tended to be concentrated in the sphere of technological innovation and in the most profitable areas of health care, and these phenomena have been accompanied by a move towards product differentiation and price discrimination. The interplay of these trends is heightening the dualism of the health-care model and is leading both to increased costs and to greater social inequity.

All of these effects are, of course, among the unlooked-for consequences and costs of the recent economic liberalization and deregulation policies, and have thus far received very little attention. In view of the various health-care markets' very marked interdependence, it is clear that the effect that these phenomena have had on the system as a whole is far from neutral. Indeed, the pressures at work in each of these markets have spread to and reinforced the pressures affecting the others, thereby gradually undermining the financial position of social security institutions and the State.

The deregulatory and free-market theories that seem appropriate in other fields of economic activity are not necessarily the most suitable ones in this sphere of community life, especially when such principles are applied in an indiscriminate manner without due consideration for the particular features and the institutional and cultural aspects of the health-care sector in each country. This sector, which is fraught with its own very special features, does not appear to lend itself to the application of conventional or universal formulas. Hence the need for the design and implementation of an appropriate regulatory model consonant with the institutional, legal and regulatory retooling called for in the case of each individual country.

(Original: Spanish)

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