"Funding health care: the role of public and private, and the role of the actuary"

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Summary

Social health insurance and private insurance both represent mechanisms which enable the burden of the direct cost of medical care for the individual to be spread, either over a period of time rather than having to be made at the time and point of delivery, and or among a group of protected people who share the risk of costs of medical care. On the other hand, health care issues cannot be addressed without some level of government involvement. This is the idea behind the need for health policy planning and implementation.

There is a considerable number of issues involved with this process; they are of different nature and present various technical and practical degrees of complexity. Nevertheless, all agree that funding is the chief issue. There are different ways of funding for health services: government financing through taxes, social insurance, private health insurance, and direct payment for services by patients. With the exception of the last, these systems all provide an element of insurance, i.e. risk pooling or risk sharing.

Actuaries have an important role to play in the process of policy-making and funding health services, regardless the specific techniques applied and the type of organization of health delivery.

This paper reviews recent experience in this field and makes some reflections about funding health services and the degree of the actuay's involvement in this process.

Part I: 1.1. Organization and provision of health care: A brief outlook of principles and current issues; 1.2. Financing health services and funding options; 1.3. Current issues in health care financing; 1.4. The role of the actuary in health care.

Part II: 2.1. Actuarial Expertise in the field: two examples; 2.2. New problems from the field.

"Financiamento de servicios de salud, la función del público, del privado y la función del actuario "

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Resumen

Los seguros de salud público y privado representan instrumentos que hacen posible distribuír el peso del costo de la atención médica durante un período determinado y entre grupos de personas que comparten el riesgo de los costos de la atención. Por otro lado, los problemas de la atención médica no se oueden abordar sin la participación de los organismos públicos. De allí la necesidad de la planificación y de la implementación de las políticas de salud.

Un cierto número de aspectos se encuentran involucrados en este proceso, que son diferentes en su naturaleza y que presentan diversos grados de complejidad técnica y práctica. Sin embargo, todos están de acuerdo que el aspecto primordial es el de la financiación. Existen diferentes modos de financiar la atención a la salud: servicios públicos mediante impuestos, seguro social, seguro privado, pago directo de los servicios por parte de los pacientes. A excepción del último, todos presentan un elemento de seguro: la mancomunidad o distribución del riesgo.

Los actuarios tienen un papel importante que desempeñar en el proceso de definición de las políticas y del financiamiento de la atención a la salud, independientemente de las técnicas empleadas y del tipo de organización de la provisión de atención a la salud.

Esta ponencia menciona algunas experiencias recientes y proporciona algunas reflexiones sobre el financiamiento de los servicios de salud y sobre el papel del actuario en este proceso.

"Funding health care: the role of public and private, and the role of the actuary"

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Part I

1.1. Organization and provision of health care: A brief outlook of principles and current issues

The main objective of a health care delivery system is to maintain or improve the health status of the population. This is accomplished by preventing disease and illness and by providing curative and rehabilitative care in case of illness. These actions should be carried out as efficiently as possible and at costs that are both bearable for the participants and financially sustainable for the society.

Most countries are aware that the responsibilities for providing health care cannot be wholly fulfilled by reliance on the market forces and that some form of direct involvement by the State is essential in order to ensure that the potentially monopolistic power of providers does not work against the interest of consumers and patients. A social or national health care system would aim to guarantee access to health services for the entire population, regardless the individual ability to pay for the service[1].

In low-income countries, where public revenues are modest and institutional capacity in the public sector is weak, financing and delivery of health is largely in the hands of the private sector. In most developed and middle-income countries governments have become central to social policy and health care.

This involvement by the public sector is justified both on theoretical and practical grounds to improve equity (by securing access to health) and efficiency (by correcting for market failures). Government intervention, however, implies the need for a health policy. While this may be expressed in terms of measures to protect people from avoidable disease and to provide efficient health services, a number of policy decisions will need to be taken with regard to the allocation of resources to and within the health sector and also with regard to those aspects which should be the responsibility of the State and those which should be left to individual responsibility.

But government resources will rarely be sufficient to meet all health care demands and should not be used to subsidize health care, which is inconsistent with or does not contribute to health policy objectives.

Many national health care systems in Africa, Asia, Europe, Latin America and North America may be regarded as successful because of their extent of access to care and the quality of that care. However, many schemes do not yet provide adequate physical or

financial access to quality health services for the entire population, in particular in the developing world [2].

As a matter of fact, almost all OECD countries have extended public health systems to the entire population, and in more than 110 countries sickness and maternity schemes provide social protection for the working population.

But the central problem worldwide is how to provide adequate health care to as many people as possible at a reasonable cost, and how to keep the financing of health care within the capacities of national economies. To achieve these goals the reform programmes, in both industrialized and developing countries, attach great importance to equal access to health care for all members of society, and to the efficiency of benefits provision.

In the industrialized countries, a reform policy oriented towards the "self-healing powers" of the market is taking place, taking into account the economic development of the health sector. Competitiveness and market incentives are being increasingly introduced into the health systems and economical behaviour is expected of all sectors, including patients. At the same time, the health industry often operates highly regulated markets and is marked by mergers among the pharmaceutical giants, worldwide operating private insurances and the emerging high-performance Managed Care organizations, which compete with traditional cabinets of medical practitioners[3].

Under such conditions a question of ethics is only gradually developing: is it sufficient to have equality of access to health care and efficiency in benefits provision in order to make a system appear to be "fair" and therefore acceptable? [4]

The question is: to what extent the ways of providing benefits should be taken into account, since benefits can be provided in an absolutely efficient and equitable manner, but they may still be felt to be humiliating? This concerns, among other things, waiting lists for vital medical treatment, refusal of the latest treatment methods or increased gearing of benefits to patient' needs. Here, in addition to the design and financing of health care schemes, the administrative bureaucracy comes under criticism[5].

The above observations leads to underline the fact that organization and provision of health care is dependent on public interventions, on personal health services' preferences and the availability of choice for the individual. Therefore, the first issue to consider in the process of identifying and defining a particular health policy is the financial aspects of health care provision and its funding. The choice of a specific arrangement in this field can determine the success or the failure of a country's health policy.

The following paragraphs will give consideration to the financing of health care and to the appropriate role of public and private funding for health care.

1.2. Financing health services and funding options[6]

Whereas public health services are normally financed by government and provided through government-mandated systems, access to personal health care depends on a wide range of mechanisms, with varying degrees of financial involvement of governments, social and

private insurance schemes, foreign donors, non-governmental organizations, communities, families and individuals.

Most financing arrangements have an element of solidarity (or cross-subsidization) entailing transfer of funds from those who are generally richer and fitter to those who are poorer and sicker.

The three main mechanisms, that finance personal health care, are taxation, insurance (social, private) and non-insurance funding systems. Most countries use a combination of mechanisms. In addition, in developing countries external donor support is a significant source of funds.

Taxation

Health services can be financed or co-financed through a variety of tax instruments: direct taxes (such as income tax), indirect taxes (such as value added tax), earmarked taxes (such as health care levies on earnings or incomes in general) or other minor sources of government revenues.

Direct taxes are normally designed to be progressive and are more likely to promote equity and cross-subsidization; the base of direct taxation is formal sector income. The extent to which general taxation alone can provide a satisfactory mechanism for mobilizing sufficient and sustainable resources for health care has been increasingly questioned[7]. In low-income countries tax-based health financing is often insufficient to cover the cost of a basic package of health service for the total population and in high-income countries its capacity to provide high-quality services is a matter of debate.

Insurance

Under insurance schemes, members pay a premium to an insurance company or fund in exchange for an agreed entitlement to a defined package. Health insurance allows payment for services to be spread across time and between those insured. It can operate either on the basis of risk-rated premiums (as in private health insurance), or can use income-related contributions (as in social health insurance), which implies some cross-subsidization of the poor by the better off. Private health insurance can operate on a profit or non-profit basis.

In some countries a single social insurance scheme covers the entire population; alternatively, a number of independent schemes may cover the population, and they may or may not compete for membership. Schemes may be located at the regional or community level or serve specific occupational groups. Some insurance schemes offer different benefit packages for different levels of contribution. The degree of risk-sharing and solidarity depends upon the size of the covered groups.

Social health insurance

Social health insurance is used to describe a method of financing and managing health care which depends for its resources on compulsory contributions from employees and employers (and sometimes also from government); contributions are often based on ability to pay.

Individual health risks (i.e. pre-existing conditions, age, disability, etc.) do not influence the level of contributions or do not inevitably lead to exclusion from protection. Social health insurance is a non-profit concept.

Social health insurance, by definition, is based on the concept of pooling of risks and resources. It is a financially viable option only if the health risk factors associated with the membership group are balanced by the income from contributions or from government transfers[8].

Most industrialized countries have introduced social health insurance or national health services. During the first stages of its implementation, it usually covers formal sector workers. The rate at which coverage is extended to include lower-paid workers, farmers and self-employed people is directly liked to the rate of economic development. As coverage extends from higher to lower income groups, governments usually need to subsidize the scheme. In addition, expanding coverage will normally lead to increased cross-subsidization between income groups for which political consensus is needed.

Social health insurance schemes in developing countries often have difficulties in devising a policy to collect contributions from and provide coverage to workers with highly fluctuating, sporadic or seasonal incomes. Many European schemes have solved the problem of the self-employed and workers with irregular income by offering voluntary membership. The main difficulty lies in setting a fair contribution level which neither deters them seeking coverage nor places an unfair cross-subsidization burden on the regular members

Social health insurance schemes are especially well suited to serve the needs of population subgroups that are able to finance their own health care, agree to do so on a solidarity basis and can be reached by formal contribution collection mechanism.

Many developing countries view social health insurance mechanisms as a means of increasing the overall resource for the health sector by letting the relatively better off pay their own way in health care, thereby increasing the resources available for those who cannot do so.

Private health insurance

The basic assumption for private health insurance is that access to care is determined by free choice and ability to pay. Private health insurance assumes that in principle every risk is insurable at a price but that the insurer retains the decision on what kind of risk to insure and whom to insure or refuse. The system provides no cross-subsidization between income groups.

Private insurance is normally associated with high transaction costs, since risk rating requires detailed information and analysis. Premiums are calculated on the basis of an expected equivalence between the present value of future premiums and the present value of future expenditure.

There are various ways in which private health insurance schemes control the risk-mix and the financial equilibrium of the scheme: the premiums are generally set on an individual

basis, which means that the level of the premium is influenced by age and sex; pre-existing health conditions (diseases or disabilities) may influence the level of premiums or may exclude from coverage; qualifying periods are applied to all new contracts; the insurance contract may be cancelled at the onset of a chronic disease or when insured members made very expensive claims.

Private health insurance schemes are an instrument for population groups that desire better-than-average services or for those who wish to complement the benefit packages offered by national health systems or social health insurance systems by a specific range of services.

Mixed social/private health insurance

It is rare for national health systems to be purely social or private; they most often include aspects of both. There are various forms of mixed systems where some benefits are financed on a solidarity basis and others through additional private contributions. In some countries many people top up the services of a social health insurance system with private insurance contracts.

Alternatively, the two systems can operate side by side: one of these two parallel systems would function on the principle of ability-to-pay and would attract clients mainly by offering better services for higher prices; the second system would serve the remaining population on a solidarity basis.

The United States is an example of this model. Private health insurance is allowed to dominate the market, with two social security schemes, Medicare and Medicaid providing coverage for so-called bad risk groups, i.e. to old age and disability pensioners on the one hand and to the poor on the other. Those who are not covered by private health insurance and who do not qualify for either Medicare or Medicaid remain without coverage [9].

Other forms of health insurance

In a number of countries governments, local authorities and local interest groups have experienced or are experimenting alternative ways of health care financing. Almost all these measures aim at providing health care to those who are deprived of it, in particular to specific population groups in developing countries.

With a similar aim in view, the ILO has introduced a programme called "Micro-insurance". It is a strategy to improve equity of access to health care for the excluded, and is based on the principle that groups of the population that are not covered or not adequately covered by existing systems can define their own set of priority needs, that these needs can be insured, and that the members of the group are willing to pay for this insurance[10].

Non-insurance funding

Among the various non-insurance means of financing or co-financing health care programmes user fees is the most important and widely applied. Mention is also made to a recent modality: medical savings accounts.

User fees

User fees are most commonly levied on drugs and dental services; fees are also charged for outpatient specialist visits, hotel services in-hospital, inpatient care (daily charges), medical tests and health aids such as eyeglasses. Generically there are multiple forms of user fees: deductibles, out-of-pocket share, co-payments, exclusion of specific items from the benefit package. Exemptions usually apply to those who are chronically ill, low-income, elderly and disabled people, and also in some cases to pregnant women and children.

User fees were gradually introduced in developing countries in response to decreases in public expenditures on health, on the assumption that they would not only provide additional resources but would also offer equity and efficiency benefits. This policy was widely recommended by the World Bank for low- and middle-income countries as part of structural adjustment[11]. In many OECD countries with tax-based or social insurance-based national systems, private health insurance schemes reimburse users for expenses which otherwise would occur as fees or co-payments under the macro-level scheme.

User fees, whether fixed or proportional, are linked to services and not to user characteristics. Their impact is regressive, which raises questions about their legitimacy. Their uneven effect on access to and utilization of health services raises doubts about its suitability even in terms of generating revenues for the health system. In addition, user fees have not proved to be a very effective instrument for increasing the efficiency of health care systems and for reducing the overprovision of services. It is providers, not patients, who take the most costly decisions; reforming the mechanisms for paying providers has done more to improve incentives than trying to choke off demand by means of user fees.

Medical savings accounts

The principle of medical service accounts is that each year a percentage of income is set aside by the individual to provide savings, which can be used for health care spending. The account is the property of the individual but the saver can cover other family members.

The main difference between savings and insurance is that the savings account is inter-temporal trade (of current consumption for future consumption), whereas insurance is trade across states of nature (from good health to bad health). In addition, because savings respond only to individual preferences, they offer no opportunity for interpersonal trade, whereas insurance is an economic interaction based on the preferences of a larger group.

The medical savings account is a plan to encourage or oblige individuals to divert part of their disposable income to health spending in the future. However, the amount saved may bear very little or no relation to the health care needs of a family. Seen from an overall point of view of a society, they are inefficient health care financing instruments.

External funding

Although this is not a major source of financing in global terms, some low-income countries remain very dependant on external funding to finance their health care. But since a number of years the nature of external funding has been changing: overall levels of support have been

reduced and there has been a shift towards imposing specific requirements on receiving governments.

External funding can help to overcome short-term resource shortages in times of economic crisis, natural disasters or war. However, external funding will never be a long-term solution to any country's structural health care financing problems.

1.3. Current issues in health care financing

Both industrialized and developing countries are faced with fundamental problems in respect of health care financing. The raising cost of health care is by far the main concern of social policy makers in most countries of the world. Focusing on cost reductions has taken priority over all other health policy objectives, even if for many developing countries the major issue remains the extension of health care to the whole population[12].

In this connection, three chief questions can be identified: Who has to finance the health care system? How are the providers to be paid? What benefits are to be financed? Some considerations are necessary prior to attempting to answer these questions. These considerations in turn also give rise to a certain number of additional questions.

Who is to finance the health care system?

Is the health care system to be financed predominantly by the taxpayers? Are employers to be required to pay contributions? Are private individuals to be called upon, fully or partly, e.g. by way of contributions and user fees? Decisions concerning the extent of the desired redistribution and equality in access to the benefits are necessary in this respect. While tax-financed systems favour persons with little or no income, the employed and self-employed are not covered by employer-financed systems, nor are the poor covered by privately financed systems. Also, decisions about the repercussions of the choice of financing on the quality and form of the systems and the preference of statutory health insurance instead of national health care from the standpoint of cost and quality have to be taken. In the same way, questions of choice between expensive, high-tech or sophisticated treatment to be provided for all those entitled to protection in tax-financed systems as opposed to loss of quality as the price to be paid for equal access for all.

Experience shows that individual countries, irrespective of their economic situation, decide on the role to be played by private insurance. It appears that in all different groups of countries varying importance and roles of private insurances are confirmed, in both percentages of privately insured persons and type of organization varying from compulsory or complementary insurance to alternatives to the State systems[13].

How are the providers to be paid?

In recent decades health sector financing reform has been inspired by two main thrusts[14]:

- The claim that the health care market's capacity to maximize the total utility of the overall resource allocation in an economy is not functioning but can be remedied through

marketization of the health care sector by introducing microeconomic incentives for providers and patients which aim at achieving greater cost-consciousness; and,

- The necessity of creating regulatory controls to ensure that the right amount of medical care is consumed by the right people, by limiting the supply of health services through strict licensing procedures, i.e. lists of prescribable drugs or simple reductions of providers income.

Both issues are to be placed in the context of questions such as: Are cost-savings to be expected from fee for service capitation or fee per case? Is hospital budgeting more efficient than fee per case? Are providers to be paid directly by beneficiaries or through third parties, e.g. health insurance companies? Are there to be limitations imposed on free of choice of doctor and hospital? Can cost reduction be achieved through Managed Care and managed Competition without loss of quality? How can it be ensured that HMO patients can regularly benefit from medical advances and not just to be treated according to standard practices?

What benefits are to be financed?

The basic question is the extent of reimbursable services. Whether basic health care only or comprehensive health cares have to be provided[15]:

- What are the respective responsibilities for reimbursement by compulsory and complementary schemes?
- What criteria should determine the choice of treatment according to the list of benefits?
- Are cost transfers to patients to be introduced by way of user fees?
- Can regular increases in the expenditure of a health care system be made in order to allow the population to benefit from medical progress?
- Can preventive measures be financed in order to avoid long-term costs?

1.4. The role of the actuary in health care

Quantitative health care analysts must constantly respond to the queries of health policy makers. Their main question is: "How much"? They may ask questions that are relatively simple to answer, but they often need to know of specific, more complex situations, for example regarding possible future scenarios, and answers to questions -or rather proposals of solutions, are the result of complex analysis. Some typical such questions may include:

- How much does the existing system cost?
- What would be the aggregate cost of an increase in doctor's fee by amount x?
- What would we save if we were to increase co-payment by amount y?
- Can we afford to introduce a national health insurance scheme? If so, how would it affect the health care liabilities of the government, employers and employees?
- Who bears the cost at present, and how can the financial burden be reallocated? [16]

It would be normally expected that health actuaries take the leading role in conducting the necessary quantitative analysis to respond to the above questions. But in fact this is not the case, at least in the majority of situations. Because at the national public health and policy levels health economists have been playing the main role as "the experts" in health care financing. And this is not a surprising matter of fact, even if there is an enormous potential of

research and practical work to carry out by health actuaries in the public health and policy fields.

The following observations and comments are directed to underline the need of actuarial advice in the health care and policy area, the advantages for actuaries in extending the scope of their professional work in this field and to explore the ways and means of promoting this new dimension for health actuaries, in order that they contribute in a more incisive and complete manner to the promotion of health in society.

At the outset, actuaries have been very active in the design, implementation and development of private health insurance provision. And this was normal, considering the origins and developments of private insurances (life and property insurances, pensions plans, health plans, etc.). This was in fact the essence of the actuarial work. When the State was called upon to provide protection to the population in case of specific social contingencies, like old-age and disability income protection, health, industrial accidents, unemployment, etc., advice was sought from experts in the various disciplines. Since the involvement of policy makers – including senior civil servants - in this process was implicit, actuaries were naturally called to establish the cost of social security protection (old-age, disability and survivors' pension schemes, employment injury schemes, and social security health care schemes - called sickness-maternity schemes); but strangely, did not participate (generally speaking) in the establishment of national health services.

Especially after the Second World War, when the economic and social needs of emerging independent countries were evident, governmental international organizations (and in particular the ILO and the World Health Organization, WHO) took over responsibilities towards the solution to the above-mentioned problems. More recently, international financial agencies (like the World Bank and the International Monetary Fund, IMF) are playing an active role in this respect, including in respect of the situation in Central and Eastern Europe.

In this way, specific fields of competence were established in the area of health care: In general, the ILO is competent in health care financing and health care management questions related to the provision and financing of health care through social security[17]. Public health issues, design of health delivery networks, and clinical medical questions are to be addressed by the WHO. As mentioned, The World Bank and the IMF are nevertheless actively involved in both fields -as well as in pension reform- given their funding roles.

The above reasons may help to explain the almost generalized absence of actuarial advice in the development of public health and policy issues.

Health economists have played an important role in the establishment and improvement of national health services and in the process of health reform, namely in developing countries. Their expertise and advice has been broad in scope, ranging from quantifying over time the resources used in health service delivery and their organization and financing, the efficiency with which resources are allocated and used for health purposes, and the effects of preventive curative and rehabilitative health services on individual and national productivity, to the macro and micro aspects of health economics[18].

In recent years, the overall trend towards sharing responsibilities between the private and public sectors, in particular in the health care field, respond to realities that cannot be ignored by health policy makers. Two issues are very important to bear in mind here:

- Adding micro-efficiency at the institutional level to the macro-efficiency that has already largely been achieved at the health system level;
- Combining entrepreneurial behaviour with solidarity[19].

The number of actuaries working in health care has risen steadily in recent years, and is likely to rise further as economic and demographic realities affect the market for health care products. Main areas of actuarial involvement in health care include:

- Income protection insurance
- Private medical insurance
- Critical illness cover
- Long-term care insurance, and
- Underwriting and genetics

With mathematical expertise, detailed product knowledge, a thorough understanding of the way an insurance company runs and up-to-date market awareness, actuaries are vital to the success of any project in the health care field [20].

Bearing in mind the above specific areas of actuarial expertise and also the two mentioned issues of today's health care policy, with an active support of the profession and the personal engagement of health care actuaries, they can and must contribute to the promotion of health in society.

Part II

2.1. Actuarial expertise in the field: two examples

As outlined in the first part of this paper, actuaries have to face a variety of situations that are beyond their specific competence being determined by political decisions or historical background. In this context, the actuarial approach should be enough flexible and requires a particular skill in helping health systems to implement adequate financial strategies. Even if health economists are playing a chief role in advising health-care systems, recent projects show that actuarial expertise starts to be required. In order to illustrate this point, reference is made to two recent reform projects. The first example concerns a health project in Tunisia supported by E.C. Commission while the second regards Morocco and is sponsored by the World Bank.

The Tunisian Project

Throughout a gradual process, the health system in Tunisia has succeeded in covering quite the entire population. There are two mandatory schemes insuring the employees of the private and public sectors. Those two funds are supplemented by a plethora of insurance

arrangements: complementary group schemes offered by private insurance companies, mutual funds and medico-social services developed by certain public enterprises. As for the lower income group, they are totally or partially covered by the State.

This complex system, characterised by a multiplicity of parties with slight coordination, has created inequalities in the distribution of the costs and benefits in health care. The situation is worsened by an uneven geographical distribution of health care facilities, which rewards the urban and coastal areas.

The need of rationalising the system has been recognised in the 9th Plan of Economic and Social Development (1997-2001) and a reform project formulated. The main lines of the reform are:

- Reconciliation of the rules of the mandatory schemes with the objective of creating a single social security plan covering the employees of the formal sector. The final scheme is aimed at securing a sufficient basic protection.
- Adaptation of the complementary schemes as a supplement of the mandatory insurance without any duplication of benefits.
- Progressive separation of the financial organisms from the organisations providing health care with a clear definition of their relationship.
- Enhancement of the role of private health providers.
- Guarantee of a better and homogeneous quality of health services.
- Establishment of specifications to define the conditions and protocols for the provision of benefits and fix the rates of responsibility that health insurance organisms and providers agree to observe.

In order to assist the Tunisian Government, the E.C. Commission has launched a project of technical assistance to be carried out by a team of experts. The main tasks of this team concern:

- Evaluation and validation of the health cost definitions.
- Validation of a simulation model concerning the financial equilibrium of the new health system and of the relevant assumptions.
- On the basis of the results of the simulation model, analysis of the consistency of the all financial components (contributions, basic health basket, co-payments, etc.) and investigation of the impact on the budgets of the parties involved (households, State, Social security funds, employers).
- Analysis of the financial equilibrium of the entire health sector and of the viability of the reform.
- Evaluation of the program concerning the supervision of the beneficiaries with a reduced contribution (low-income groups).

The E.C. project proposes five experts, namely:

- a health economist as the team chief;
- a planner in the field of public system;
- a health insurance expert in the field of protocols and reimbursement rules;

- a *financial* expert with a good knowledge of *actuarial techniques* and simulation methods;
- an expert of quality control in the field of health insurance.

Even if there no specific mention of actuaries, the reference to actuarial techniques is of the utmost importance. It is clear that the reform would be implemented and monitored by means of an actuarial simulation model to be validated by the *financial expert* of the team.

According to the lines of the project, the actuarial model is the key issue of the reform: it should be very complex and flexible and should permit

- to assess the basic basket of health services by taking into account possible different strategies;
- to determine the financial equilibrium of the health system as a whole and in each single component;
- to monitor permanently the system and verify that the costs are always affordable by the different parties.

Obviously, the inputs for the simulation model are decisive for a meaningful analysis and only teamwork, joint efforts of various specialists may assure the success of the project.

The Moroccan Project

In Morocco, health insurance is characterised by a very low degree of coverage, a variety of public departments responsible for health policy and an unbalanced distribution of health care providers, which are concentrated in urban areas.

This situation has driven the Government to carry out some preliminary studies in order to rationalise the health sector, to introduce a mandatory health insurance and to finance health care in respect of the less advantaged citizens. As for the latter issue a project of technical assistance has been prepared with the support of the World Bank.

In this case the technical assistance takes the form of an actuarial study aimed at carrying out demographic assessment of the people concerned and financial valuations of the health care costs in respect of the less advantaged part of the population. The terms of reference of the actuary include:

- Identification of the less advantaged part of population, not covered by other schemes and analysis of its socio-economic structure.
- Medical profile of this population.
- Identification of the essential care needed.
- Cost valuation of the medical care for this part of population (preventive and curative care with a classification of the cost according to different pathologies).
- Actuarial projections of the cost (15 years) by taking into account the probability to remain in the less advantaged group. Projections should be made by considering different scenarios.
- Identification of the financial sources.

- Recommendations concerning the administration of the scheme with particular regards to the issue of the identity cards for the entitlement of benefits.
- Relationship with other forms of insurance (i.e. the planned compulsory insurance, employment injury and motor liability).
- Plan of a statistical system of data collection and proposals relevant to adequate statistical indicators needed in order to monitor the financial viability of the scheme.

It is evident that this project requires a remarkable commitment for an actuary whose task cannot be accomplished without a strict cooperation with local statisticians and administrators.

Both examples show that the key of the success for a social security actuary resides in a fruitful sharing of experience, knowledge and information with other specialists. In the field of health care financing the multidisciplinary approach is vital: no model may be conceived in an abstract isolation.

2.2. New problems from the field

As already pointed out, social health insurance is mainly based on cross-subsidization between income groups: contributions or taxations are levied on income without any relationship with benefits. While in the industrialised countries the definition of income is always obvious, for the informal and rural sectors of the less developed countries the concept of income is fictitious and other solutions have to be sought. Should the income definition (as declared for tax purposes) be replaced by other indicators of the actual revenue (such as electricity consumption)? Is it preferable to set flat premiums? Actuaries should be prepared to find continuously adequate ways of financing health care systems and be open-minded in respect of new concepts and definitions.

It should be said that flat contributions are already experienced in some countries (as in the pilot schemes of rural areas in Nepal) and represent the best solution for financing health care in poor environments. As for alternative measures of revenue, they are still in the phase of debate.

The micro-insurance programs offer other examples of flat premiums. From a social point of view, this form of mutual organisation represents a successful experiment in areas where the shortfall in social protection is most marked. They are based on the principles of solidarity and risk pooling with a very high participation of the members in defining priority needs, setting insurance premiums, management and control of the scheme[21]. Because of the effective participation at different levels of decision making, the members seem to be very proud of belonging to their organisation: they fill to be committed to a process of personal and collective development.

It would be worthy that actuaries be interested in looking at the financing of those voluntary (and sometimes very small schemes), which present interesting features, such as the selection of the benefit package and the premium calculation that comprises a sort of "safety loading".

[1] *Social Health Insurance*, International Labour Office (ILO) and International Social Security Association (ISSA), Geneva, 1999.
[2] *Modelling in health care finance*, ILO and ISSA, Geneva, 1999.
[3] *Current issues in health care reform*, General Secretariat of the ISSA, Geneva, 1999.
[4] *Neue Zurcher Zeitung*, 7-8 March 1998, on coments on a policy of dignity by Avishai Margalit.
[5] *Current issues in health care reform*, op. cit.
[6] There is an abundant literature describing existing mechanisms for health care financing. Chapter 4 of *World Labour Report 2000: Income security and social protection in a changing world*, ILO, Geneva, 2000 is descriptive of these mechanisms and illustrative of the present situation worldwide. Some of its statements and examples are quoted in this section.
[7] *World Development Report 1993: Investing in health*, World Bank, New York, 1993.
[8] *Social health insurance*, op. cit.
[9] In 1997, the most recent year for which the Census Bureau has figures, more than 43 million people, or 16 per cent of the U.S. population, were without health insurance coverage. *World Labour Report*, op. cit.
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