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Financing Problems and Options for a Solution

The Americas Social Security Report 2002

Inter-American Conference on Social Security

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The Inter-American Conference on Social Security (CISS) is a specialized international technical organization, with permanent character. The CISS was founded by the social security directors of the continent in a 1942 meeting in Santiago de Chile.

The CISS has as its main objective the development of social security in the Americas. In order to attain that goal it fosters the diffusion of achievements in social security, cooperation and exchange of experiences among social security institutions.

Through its publications, the CISS gathers and disseminates social security studies across the Americas, while making policy recommendations for the consideration of planners of programs and policies throughout the continent.

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FOREWORD

In the meeting of the Executive Commission of the Permanent Inter-American Committee on Social Security (CPISS) in June 2001 in Mexico City, Dr Santiago Levy, President of the Inter-American Conference on Social Security (CISS) proposed the annual publication of an analytical document that would serve as a reference for academics and policy-makers, focusing on a different topic each year.

Later that year, in the XIX General Meeting of the CISS in Fortaleza, Brazil, Dr Levy proposed the Annual Report to the plenary session of the CISS members, making the commitment that the first edition would be presented at the XLVI Meeting of the CPISS to be held in Mexico City in October 2002.

The topic proposed for the first edition of this report was the financing troubles of the social security systems in the continent and the options for a solution. It was thought that the analysis and discussion of such issues would lead to a consideration of the very foundations of social security: setting definitions, clarifying the reasons why the participation of the State is needed, understanding the financial difficulties of the schemes and building an analytical framework to evaluate alternative policies.

In addition, the discussion of the financing problems may lead in a natural manner to the analysis of the challenge facing the systems in an endeavor to widen coverage, which is vital in a continent where most of the countries suffer from a large share of their workforce in the informal sector, i.e. outside the social security schemes.

It must be remembered that this year the CISS celebrates its sixtieth anniversary, and one of the main issues discussed in the first meeting in September 1942 was the question of which financial schemes would be the most appropriate.

Sixty years ago social security across the continent was organized mainly under a pay-as-you-go scheme, in which the benefits for those in an adverse situation, such as old age, retirement or sickness, were paid using the funds accrued from the contributions of workers active in the labor market.

As will be explained later in this report, such schemes are facing major financial problems as the population is ageing and wages do not experience any real increase, among other causes.

In the Fortaleza Meeting, Dr Levy placed great emphasis on the pattern followed by a key variable for the financing of the social security systems: birth rates have decreased to approximately half of the levels experienced around 1942 in almost every

country in the area, while life expectancy has increased by between 40 and 75 per cent in those six decades, implying a substantial increase in the proportion of the older population.

This aging of the population exerts great financial pressure on the pensions systems, and also on health schemes as the rates of some diseases such as cancer, diabetes and cardiovascular complaints increase with age.

On the other hand, the economic crises over the last two decades, especially during the 1980s, led to a collapse in the real value of wages, which is at the root, among other things, of the financial weakness of the social security systems.

In fact, such difficulties led not a few countries of the continent to reform their pensions systems, and in some cases even also those of health. Regarding pensions, an increasing number of countries in the continent are choosing the individual accounts systems, in which every worker saves throughout their whole active life for the benefits that they will receive on retirement.

These new schemes, however, are not exempt from any of the financial problems of the pay-as-you-go systems. In fact, it seems evident that a future edition of The Americas Social Security Report will be focused on the analysis of the performance of the reformed systems, as this may provide useful knowledge for those countries that have undertaken reforms as well as for those evaluating whether reforms would be appropriate. For all these reasons, it was considered fitting that the topic of this first report should be the financial dilemmas of the social security systems.

Jorge Meléndez
Secretary General of the CISS

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Acronyms and Abbreviations

AFORES	Administrative Costs of Retirement Fund Managers
AIDS	Acquired Immune Deficiency Syndrome
CISS	Inter-American Conference on Social Security
ECLA	Economic Commission for Latin American
FGTS	Guarantee Fund of Time of Service
GDP	Gross Domestic Product
HMO	Health Maintenance Organizations
IDB	Inter-American Development Bank
ILO	International Labor Organization
IMF	International Monetary Fund
Ing Gob	Governments Contributions to Social Security Revenues
INCA	National Institute for Colonization and Land Reform
MGP	Minimum Guaranteed Pension
OECD	Organization for Economic Cooperation and Development
PAYG	Pay As You Go
SEBRAE	Brazilian Service of Support to Small and Medium Enterprises
SSA	Social Security Administration
VAT	Value Added Tax

DEFINING AND CLARIFYING BASIC CONCEPTS

Before discussing different options for financing social security, one has to begin by defining terms in order to understand the implications and scope of each basic concept. It is also necessary to reflect very carefully on the importance of the existence of social security systems and, especially, to examine which theories try to explain the role that the State plays in these.

The changes in the ways in which a society pays for its social insurance services could affect the realization of some of the very goals of that social security system. A particular reform could solve a financial problem but, in doing so, might possibly undermine the essence or the original intention of the system.

For that reason, this chapter begins with a brief look at what can be considered to be social security, in all its various forms. After that, there is a brief discussion of its importance followed by a review of the theories that have been developed in order to try to explain the role played by the government in social security.

I.1 What is to be understood by social security? In search of a definition

Many seminal documents from international organizations and governments have recognized access to an adequate level of social security as one of the fundamental rights of every individual. Nevertheless, even though the discussion has focused on the provision of financial assistance to specific groups of people, in whatever form it might take, the fact is that the term 'social security' has not been defined in any agreed way. For this reason, in any discussion that takes place, there remains the need to define what is to be understood by 'social security' and what is the scope of the concept. In other words, what kinds of programs are encompassed in this term.

The term 'social security' was first used in the United States, in the Social Security Act of 1935, and received its fullest expression in the Beveridge Report in the United Kingdom. That report fought to provide social security services to citizens 'from cradle to grave', and to place those benefits in the wider context of socially progressive policies, through the co-operation of the State and individuals. (Beveridge, 1942). In this report, the consolidation of the welfare state meant that government measures that would lead to a basic living standard and assistance to those in need. Ideally, the intention was to reduce poverty and inequality and to achieve higher levels of social integration and solidarity.

A definition of social security could be the provision of benefits to families and individuals, through public or collective agreements, in order to give protection against low or falling standards of living resulting from various uncertainties or dangers (unemployment, disability, retirement) and to meet what society considers to be basic needs (van Ginneken, 1999).

In the past, the Inter-American Conference of Social Security (CISS) has defined social security as, on the one hand, the organization to prevent whatever problems could deprive the worker of the ability to earn a living and the means of survival, with the aim of facilitating the speediest and fullest recovery when that capacity has been lost or reduced due to illness or accident and, on the other, as the provision of the necessary means of subsistence when the working activity is interrupted (CISS, 1992).

The International Labor Organization (ILO, 1984, p. 3) defined social security as 'a body of public measures that society may take to protect its members against economic and social distress which may otherwise be caused by substantial loss of

income as a result of sickness, maternity, unemployment, invalidity, employment injury, old age and death; and also protection in the form of healthcare and of help to ease the financial burden on a family with children'.

The concept used by the ILO includes measures that could be considered as social assistance or are of universal application for which there exists no agreed definition either and which are difficult to classify within the concept of insurance against risk.

In fact, a problem with the aforementioned definitions is precisely that they are enumerative, that means that social security is defined through a list of types of programs: relating to risks at work, of health, of sickness, etcetera, as well as those of social assistance.

Now, it is certainly true that social assistance programs, such as those to alleviate poverty, can and must be incorporated into social security schemes as part of a system of solidarity, because the fight against poverty must be understood as a way in which the State protects the opportunities of all children against the risk of being born into a socially disadvantaged family. In doing so, these will remain faithful to the principles of solidarity that laid down the foundations for the growth of social security systems throughout the world, and effectively, this is the way to arrive at a more conceptual definition.

In this way, a wider and more general definition of social security would be that it is a scheme for insuring against individual risks, by managing the resources of society in the spirit of solidarity, through which the State assures that all its citizens will have the same economic opportunities no matter what family or group they happen to belong to, or whatever the particular twists of fate they may have to deal with.[1] As explained above, such a definition must comprise, under the usual theoretical framework, the programs of social security as a whole and also include social assistance.

Therefore, in line with the wider definition presented in this report, if one is to consider programs that are normally classified as social assistance under the concept of social security, the types of schemes could then be grouped in different sections according to the extent to which they depend on the income or the age of the beneficiary and/or their dependents, or whether it is a universal program which therefore does not lay down such requirements (Feldstein and Liebman, 2001; Myers, 1993; ILO, 1984; Redja, 1994). A classification of programs follows.

I.1.1 Social insurance[2]

This is one of the most widely used forms for bringing social welfare into a given context. The aim of this system is to provide workers and their families with health services and income protection in the face of eventualities such as sickness, maternity, unemployment, disability, old age or death, among others. It also provides subsistence in cases where the worker cannot continue working, either temporarily or permanently. Generally, it also includes a pension that the worker receives at the end of their working life.

This system, however, does not have universal application as it is based on a series of requirements:

- Affiliation is compulsory by law.

[1] The reader may find that this definition has certain similarities with the ideas of Rawls (1971), who proposed that the idea of social justice must be defined through an intellectual process, whereby individuals agree on what should be just, before knowing for certain what their own lives may bring. This means that they debate and come to a consensus about values of social justice in the knowledge that there is a possibility that they may find themselves in a position of disadvantage and lack of opportunity. In this way, social solidarity arises naturally as a value, which would not necessarily be the case if a privileged person debates what s/he considers to be socially just. A demand for social security programs would therefore also be a logical consequence of an exercise of this kind because, as stated in the proposed definition, one of the roles of the State would be to ensure that all its citizens have the same economic opportunities.

[2] The term social insurance and social security has been used as synonyms. Although in some countries they may include different concepts it is generally accepted that they include the same set of services. From here onwards this report will used both terms as synonyms.

- The scheme is financed through payments or contributions, whether partial or in full, made by workers, employees and the government. Eligibility for this system is therefore subject to the contributions or payments made by the worker, which of course implies individuals who are employed in the formal sector of the economy.

- The payment of contributions grants the right to related benefits without the recipient having to prove income or a financial situation.

- Contributions are generally linked to the worker's income as laid down by law. Most legislation attempts to redistribute the wealth of the highly paid workers towards the lower paid ones.

- Contributions are channeled into special funds from which the benefits provided are financed.

- The areas of insurance against work injury and occupational illness are generally covered in full by the employer, although sometimes the State covers a share. Other areas covered include disability and death, old age, unemployment insurance and health insurance.

As will be explained in Chapter III, social insurance systems are financed through two different possible schemes, according to the way in which contributions are channeled: the first is of a pay-as-you-go nature, in which contributions by active workers pay the pensions and other liabilities of retired workers; the second is through funded schemes in which it is compulsory for workers to save during their working life, creating a fund from where their benefits will be paid.

I.1.2 Social assistance

These programs, for the most part aimed at low-income individuals, can be defined as a collection of measures aimed at improving the social conditions that hold back an individual's full development. They also involve physical, mental and social protection for people in need, as well as helping their reintegration into family, work or society. They generally involve activities to protect, rehabilitate and provide healthcare in cases of abuse, exploitation, abandonment, dependency, helplessness in old age, among others. The characteristics of these kinds of programs are:

- Governments finance them with public funds.

- They are aimed at low income individuals or families

- Benefits are means-tested and depend on proof of the economic situation of the applicant.

- The benefits are aimed at increasing the income of those who receive them, up to what society considers a minimum level, taking into account the particular situation and needs of the individual or family.

- The benefits are discretionary, though within the rules laid down by legislation.

I.1.3 Universal programs

Given that social insurance benefits are provided to contributors and their families, it is important not to exclude from State protection those people who cannot make contributions because they do not have any kind of formal employment, but do not fall either within the category of those who receive social assistance

For this reason, programs to include these kinds of people have been set up in order to increase their welfare and create a good opportunity for them to integrate into society. In general, the simple fact of being a citizen is enough to make someone eligible to receive the benefits of these programs, covering areas such as health, education, social security, food and housing, among others. Such schemes are financed by the government using public funds, either in full or by offering large subsidies to some services, in which case

the beneficiaries pay a predetermined part of the cost of the service.

I.1.4 Employer programs

There are certain kinds of benefits that by law must be provided by employers. In some cases of occupational illness or work injury, the employer has to pay indemnity and medical costs plus whatever damages and penalties to which s/he may be subject through court action. Also included here are benefits such as paid sickness and maternity leave, the right to severance for unfair dismissal, as well as some pension schemes. These programs are financed in full by the employer and do not seek to redistribute income among workers, and they will only be given as long as the worker is employed.

I.1.5 Other programs

There are some programs, which though not compulsory by law, are nevertheless encouraged and promoted by the government. These are financed by contributions and these determine eligibility, even though on some occasions the situations are hybrid and various schemes are combined. An example of this is savings or pension funds within a company, which oblige workers to save regularly in order to meet any future contingencies. These benefits are difficult to include as part of a traditional social security scheme because they do not aim to refund the earnings that are lost in a given situation, nor do they seek to redistribute them among the workers.

I.2 The importance of social security in the development of nations

Social security can contribute in various ways to the welfare of a nation. In the first place, it offers benefits through health services, which have been categorized as a key element in the human capital of a country, as they increase workers' productivity and thus aid economic growth.

When looking in depth at the reasons why social security is considered so important in a nation's development process, it is particularly useful to highlight the following arguments (World Bank, 1993; ILO, 2001; Sala-i-Martin 1996):

- Deficient health is one of the principal causes of low productivity at work in many of the developing countries, where workers have no access to an adequate health service. Health improvements help towards economic growth in at least four ways: by reducing production lost due to worker illness; by allowing the use of resources that would otherwise be totally or practically unavailable due to illness; by increasing the academic enrollment of students who in the future can apply their knowledge; and by freeing the resources that would be spent on taking care of sickness and redirecting them to other uses.

- Pension schemes make it easier to release workers from the labor force when their productivity has decreased. A particular case in point would be that of older workers.

- Monetary benefits during illness contribute to the worker's recovery, eliminating the financial pressure to continue working when sick and thus avoiding the rest of the workforce having their productivity affected through being infected.

- Maternity benefit is of particular importance to ensure a healthy workforce for the future and look after the health of working mothers.

- The oldest and most complete form of social security in existence is without doubt the schemes concerned with workplace injuries, which have played a key role in preventing hazards at work. The measures introduced due to these schemes play a part in productivity, given that they help to avoid the loss of working days as a result of illness or accidents.

- Benefits provided during periods of unemployment help those affected to

find a new job that will allow them to fully develop their productive capacity. To society, it gives the possibility of reassigning the different types of worker to those jobs where they would be most productive, minimizing the cost of adjustment.

- Financial benefits provided to workers having children help to ensure an income that can provide adequate nourishment and a healthy home environment. In some countries, these benefits are an instrument in the fight against child labor and in this way increase the number of children studying, which in the long term helps to provide a labor force with higher levels of productivity.

Where the categories mentioned above only apply to those who make contributions, universal and welfare programs provide health services and other benefits to those who do not have a formal job or lack the economic resources for sufficient food. In addition, they provide certain school materials, which children from disadvantaged backgrounds depend on.

Therefore, social security also plays a redistributive role, not only between groups of the same generation but also between different generations. This redistribution both between and within different generations is inherent to every kind of system, whether it works according to the principle of insurance or that of solidarity between the worker who is well and the worker who is sick, between those who are still active and those who have retired, between those who have children and those who do not. In every case, there are on one side those who are systematically charged for contributions or taxes and, on the other, those who receive benefit payments to deal with the respective contingency.

I.3 The role of government in social security. Why, what for and to what extent?

Many of the problems that social security systems aim to resolve are, to a large extent, linked to individual or family decisions: to have medical insurance, to save up for old age, to be covered against the uncertainty of a premature death, or against a life that turns out to be longer than expected, among other similar situations.

If the individual or the family deals with these problems as a natural part of the dilemmas of their private life, why is it necessary for the State to get involved in the provision of social security? Is this State involvement not redundant?

This is, of course, a fundamental question and for this reason this section presents a brief outline of the theories that justify state intervention in social security programs. To reach an understanding of the government's field of action in the solutions to these family problems is a prerequisite for the discussion that follows about ways of financing social security.

The above-mentioned issues have been previously analyzed in a number of studies, including Diamond (1977); Feldstein and Leibman (2001); Mulligan and Sala-i-Martin (1999, 1999a, 1999b); Myers (1993); and Redja (1994), among others. The discussion here will offer a summary of the detailed arguments developed by those authors.

I.3.1 Three main arguments

As a starting point, and borrowing the 'efficiency-equity' dichotomy from economic discourse, public intervention could be justified in terms of efficiency gains in the economy, or in terms of a fairer redistribution of resources. In the first case, the advantage of the government participation would be reflected in the fact that society could enjoy more goods and services from using the same resources, while in the second case there would be a higher level of social welfare due to the fact that the government contributed towards redistributing those goods and services from one group to another, according to a social ethic.

A third reason for state involvement in social security could be a political, rather than economic one. For example, when voters form and act together in large coalitions or there are minority pressure groups that come to dominate the political arena, they can force decisions for their own ends or those of their supporters. In cases such as these, in line with the motives of the dominant political forces, society may enjoy the benefits of efficiency or equality, although that is not necessarily the case, and the government intervention can simply be a response to a political reality, even if sometimes it involves the wasting of resources.

There follows a discussion of certain theories that help towards an understanding of the existence of social security as a public institution, the theories being grouped into large families based on these three arguments: economic efficiency, social equality and political strategy.

I.3.2 Economic efficiency and the role of government in social security

Even though, according to prevailing economic theory, the market and the price mechanism are the most adequate means for the efficient provision of goods and services, there are circumstances in which it fails and this leads to a squandering of resources. This can be corrected by government intervention.

There are four arguments that follow this logic: (a) The existence of 'public' goods and services; (b) the 'external' social effects of individual actions; (c) markets that tend to be monopolistic in the presence of economies of scale; and (d) asymmetries in the information available to different participants in the process. As will be seen in the following outline, the different arguments for the role of government in social security tend to complement one another.

I.3.2.a 'Public' goods and services

Private goods and services are those consumed by choice by people who pay to enjoy them, through the mechanism of prices established by the market.

Public goods and services, on the other hand, are those available to all the population: the individual does not have any control over them. One example is national defense, a service that, if provided, benefits everyone without exception. Another classic example is that of lighthouses: wherever there is a lighthouse, it is not just one boat but all boats that benefit from it. The same is true with public parks.

According to Samuelson (1954), public goods and services have two basic characteristics: (1) they are not rival or divisible in their consumption, which means that they are available to everyone. When a service is being provided to one person or group, the arrival of someone else to use it adds no extra cost; (2) they are not excludable, which means no one can be excluded from benefiting from them.

Despite the fact that society gains from public goods and services, from the point of view of the private sector it is not profitable to produce or provide them because of obvious problems of charging for them. Here, the market 'fails' and it is necessary that the government, being not motivated by profit, provide them.

Of course, as Buchanan (1968) observed, there is a series of goods and services that cannot be categorized in a clear-cut way. For instance, a particular landscape can be available to everyone with no additional cost if one more person wants to enjoy it, but the area from where it is observed can be restricted and access to it can incur a charge. Or for instance, the cost of providing a service for one more person can be zero up to a certain point, as would be the case in the use of a road, but after that congestion would mean that the necessary cost of one extra user would be significant.

On the other hand, it has to be recognized that the fact that goods or services are 'public' implies that they have to be financed by the government if society wants to enjoy them. However, the govern-

ment does not necessarily have to produce them. The authority can simply pay a private company to do that, in other words grant a concession. In this situation, of course, additional problems of regulation may arise.

Another idea that comes into the concept of public goods or services is that of the so-called 'meritory goods' (Musgrave, 1959) that society may wish certain groups to have or consume. If they are provided, it implies that access will have to be restricted to a specific sector, on the basis that not everyone meets the necessary requirements to enjoy these services at the expense of the State. For example, a public health campaign or basic education could be considered 'meritory' goods or services, and because of the collective way in which they are provided (in schools or public medical centers) it might be necessary to establish that people from families with high incomes cannot participate. In other words, policies are implemented that exclude certain social groups.

These 'meritory' goods or 'preferential' services exist when government policies are imposed on people, obliging them into courses of action that they would not otherwise follow.

The justification for this course of action may be, for example, that individuals do not have a perfect vision of the future and, therefore, do not save enough while young to buy insurance, which means that the State must oblige them to do so. According to Diamond (1977) this may occur for different reasons, among which: (1) people may have a lack of information that prevents them from properly evaluating their future situation; (2) they may be incapable of taking effective decisions, given that they are not disposed to consider that one day they will be faced with retirement or sickness; (3) they may act in a myopic way because they do not give enough weight to the future when they make decisions. As a result, it is advisable that the State takes action and forces the young population to save adequately.

Nevertheless, there is another side to this argument. It could be said that when the older generations anticipated their own needs when they were young, they had also predicted that the new generations would react caring for such needs (Laitner, 1988). People would come to expect society to help them when they reach old age if they ever found themselves in intolerable situations, and therefore they would not save when they were young.

In this discussion about what public goods and services are, taking into account the 'impurities' of everyday life when it comes to actually applying the theoretical model, it should be made clear that it is the role of public policy to define which services should be considered as 'public', who should provide them, who pays for them, how they are paid for and who is paid.

In reality, the public and private sector can overlap and interact in the production and provision of what are considered public goods and services, which can be allocated according to payment or 'meritory' criteria.

Relating all of these concepts to the subject of this report, it can be noted that because it is normal for social security and its financing to be compulsory, as well as usual that it be provided in a collective way, it happens that its consumption is non-rival and indivisible and on many occasions it is non-excludable between the individuals and families who contribute to its financing. For this reason, various ideas from the theory of public goods are relevant to the study of social security.

Let us consider health services, nurseries or other provisions, which, at least in the pay-as-you-go systems, are contracted collectively so that the cost of attending one extra person is practically zero, as long as the service has not reached congestion level.

The theory of public goods states, on the one hand, that as long as these concepts are relevant to the analysis of the

conditions in which different social security services are provided, public financing of these schemes is necessary to achieve the best use of a society's resources. On the other hand, it also states that the provision of these services can be undertaken by a private agent, with a concession from the State, especially if the 'public' nature of what is provided to the beneficiaries involves the possibility of some exclusion or rivalry in consumption that can be established through practice as well as through laws and regulations.

I.3.2.b 'External' social effects of individual actions

'Externalities' refers to actions carried out by an agent which produce some kind of effect on others, either prejudicial or beneficial, and for which no compensation is provided.

For example, when a factory pollutes, it badly affects those who live in the locality without any compensation having to be paid for the damage caused. An externality can also be positive of course, as would be the case in which the higher education of one person or a social group increases the productivity of others with whom they interact at work or in their daily lives. The individual or group in question benefit themselves, privately, through having a better education, but at the same time, create an 'external' effect on those around them. In the language of those who evaluate projects, it would be said that investment in education (or in social security services, like health) yields both a private and a social return.

In the case of externalities, there is an inefficient budgeting of resources if the producers pursue profits alone: in the previous examples, society would wish to invest less money in the production of the polluting factory and more in the education of the individual or group who benefit those who live and work around them.

As the polluting company does not have to pay for the damage, from its private point of view it produces as long as that is profitable, depending on the demand for its product and the costs of production. From the social point of view it would be producing 'too much', since it would not be considering the social cost of the damage caused by pollution. Likewise, as an individual or group is not paid for studying, because they do not receive any additional private benefit, from the social point of view they study 'too little'.

In other words, if there is a positive externality, goods and services are produced in less quantity than the community would wish, while if the externalities are negative, they are produced in greater quantities than is socially desired.

The solution to these failures of the market consists then in internalizing the effects produced by these goods and services, generating mechanisms of compensation. Some of the options that can be considered to achieve such compensation are regulation, subsidies, and tariffs or contributions.

In the case of social security, the general benefits that it brings to society as a whole have been discussed above. To give one example, a system of pensions can facilitate the release from the labor market of workers whose productivity has fallen due to old age. This can lead to an increase in the potential production of the active workforce if other more productive workers replace those who have been retired. Here, it is assumed that the 'older' workers would have a negative external effect and therefore, society would benefit if they relinquish their place to others younger than themselves. For this reason it makes sense to give them 'incentives' to retire. This is the idea developed by Sala-i-Martin (1996), who suggested that pensions represent intergenerational transfers to compensate older people for their retirement from the labor market.

In section I.2, other possible results of social security that can be interpreted as positive externalities were discussed, such as the impact of public health programs or

sickness benefits that avoid the spread of illness, for example.

So, it is possible to affirm that if social security is in the hands of the government (in other words, not managed for profit), when it offers those services it would be taking into account the external effects, and therefore provision would be optimal from the social point of view.

In the case where concessions for certain branches or services of social security are given to private companies, with the aim of providing the best possible social service to the beneficiaries, the concession must then stipulate, contractually, the level of provision to be operated. Another possibility is that subsidies or incentives be put in place so that the private companies respond to social needs in a way that they would not if there were no private benefits for them.

In any case, the need for public intervention, that is, that the government provides, administers or regulates social security, would be a natural result of the positive externalities phenomenon that derives from such programs.

I.3.2.c Markets that tend towards monopoly when there are economies of scale

There are increasing returns to scale when the cost of each unit of production (average cost) decreases as the volume of production increases. This means that for a business operating in the market, it is best to expand production and operate on a large scale.

When this happens, the market may tend to become monopolized because the existence of many companies competing amongst themselves leads to bankruptcy.[3] Only one company, or a greatly reduced number of firms, can survive.

Nevertheless, once the market is monopolized, the pricing policy of a private company with this power does often match what is good for society as a whole.

For this reason, in such a situation the State could retain the production of these types of goods to avoid it falling into the hands of companies operating solely for profit. Or alternatively, it could act to regulate the behavior and price structure of the producer or group of producers.

It is precisely in the case of social security benefits that it may be argued that the State should provide such services because it operates on economies of scale in the administration of costs, and therefore these are lower than if more providers are involved, each one itself contracting with individuals. The advantage the State has is based on the fact that it can make affiliation compulsory and therefore it can offer lower costs to all its beneficiaries. So the returns on social security funds being managed on a large scale by the government can be greater than those managed on a smaller scale by private companies.

I.3.2.d. Asymmetry in the information available to the participants in the process

In order for the economy to arrive at the optimum allocation of its resources, there needs to be a complete exchange of information between those involved. Nevertheless, there are situations in which information is not complete or some of the people involved possess more than others and the mechanisms of adjustment in the market are not able to provide everyone with the necessary information.

This asymmetry in access to information creates in turn two other problems that lead to a failure of the market. The first is that of moral hazard and the second, adverse selection.

[3] The reason is that competition forces companies to sell their product at the marginal cost, that means, at the cost of one additional unit of production, However, with increasing returns to scale the marginal cost is less than the average cost, for which reason each unit would be sold for less than the average cost and the company would incur losses. In order to understand why the marginal cost is less than the average cost, the reader should imagine a student with a particular average of wrong answers in his previous exams (average cost); in order for this average to decrease with new exams (average cost decreasing, that is, increasing returns to scale) it is necessary that in each additional exam his percentage of wrong answers (marginal cost) be less than the average in the previous exams. That is, he does better each time than he has on previous occasions.

A moral hazard arises in the presence of incentives for people to act in a way that generates costs for which they are not responsible. For example, someone who is unemployed may have very little interest in finding work if there are state benefits for people out of work; or a person may be less careful to avoid illness if they have very generous health insurance. The agent responsible for providing the benefits is unable to distinguish between someone claiming those benefits and behaving 'well' and someone who is acting carelessly, taking advantage of the available information.

The moral hazard problem could be solved in part through a system of deductible premiums that oblige the affiliate to cover part of the risk of his/her activities, or limit the terms of the benefits in the scheme. This means not insuring a person completely when one does not have all the information about his private behavior that may affect the risks covered in the insurance policy.

Adverse selection on the other hand, arises in situations where one party enters into a transaction but does not possess the same information as the other party and cannot verify it or obtain it, something that often happens in the insurance market. If one of the parties, possessing information that s/he is of high risk, hides this from whoever is offering the insurance and that insurer has no way of obtaining such information, this entails the problem of adverse selection. In the case of voluntary insurance, the insurers offer a premium based on average risk. This is unfavorable to those individuals who have a low risk factor as the costs of the policies appear to be too high and they decide not to get insured. Consequently, those with a high risk dominate the market and if the insurers covered them they would suffer losses, so they prefer not to offer such insurance or provide a coverage that is incomplete. The market 'fails' because although socially it makes sense to have insurance, private companies have no incentive to offer it and the market is not properly developed.

It is for this precise reason that compulsory social security, under state control, can be the solution to the problem. By requiring that everyone, of both high and low risk, affiliates to a scheme, the market is 'saved' by preserving the possibility of diversifying the risks. A compulsory social security scheme established by the State is therefore a good way out of this dilemma of adverse selection.

I.3.3 Social security and the redistribution of resources in society

Even if a market that was free from failures rendered an efficient allocation of resources, from the standpoint of the values of social equity, a community could still be dissatisfied with the distribution of wealth and resources.

The market does not necessarily provide a uniform distribution of income and the access to goods and services is unequal. The State, therefore, may take on the task of providing social security services to guarantee a minimum, socially acceptable level of welfare for groups disadvantaged by the workings of economic institutions.

In particular, a system of social security can be seen as a way of alleviating poverty among older people. It is a way of transferring resources between the generations through contributions made by the younger population. That the scheme is managed by the State and made compulsory by law can help to resolve the problem of an asymmetry of information. To put it another way, it can avoid a younger person trying to pay less contributions that favor the older generation through hiding information about his/her real ability to pay.

I.3.4 Political theories on the existence of social security

It has been argued that organizations of the older generation represent an influential pressure group on the political process, resulting in an increase in public spending on pensions and care for the

elderly. Some studies have suggested that it was precisely the existence of such interest groups that proved fundamental in the creation and growth of social security systems in various parts of the world (for the United States, for example, see Costa, 1998 and Holtzman, 1963; for Mexico, see Cordera, 1992).

Mulligan and Sala-i-Martin (1999a) detail some of the complexities and subtleties of the political theories to explain the existence of social security as an institution of the State. In particular, they argue, there is no sense in the models that claim that older adults simply gain their benefits through holding a majority at general elections. Despite the increasing age of the population throughout the world, elderly people do not constitute a majority of voters. In this case, political theories have to argue that the elderly form political coalitions with more numerous groups, like the poor. Another possibility is that they ally themselves with those of middle age to institute programs that will benefit those people when they reach retirement: people of middle age yield some resources to the elderly now in order to ensure that they themselves get support when reaching the third age.

On the other hand, they point out that because old people have a lower labor force participation, they certainly have more free time to spend on political pressure. This increases the possibility that their agenda will be successful. If one adds the idea that individuals are extremely sensitive to unexpected losses, more so than to unexpected gains, and that the weight of the elderly on electoral processes may be decisive, one might reach an explanation of why the older population can be effective in maintaining what they consider to be their legitimate right (Pestieau, 1999).

AN OVERVIEW OF AMERICAN SOCIAL SECURITY

What are the characteristics of the social security systems in the American continent? How do they relate to other characteristics? What factors determine expenditure on social security in the nations of this hemisphere?

This chapter seeks to answer these questions through the analysis of aggregate statistics for the American countries. This is a fundamental step before proceeding to the discussion of options for financing, because the discussion often takes place under the assumption that certain 'macro' relations are a given fact, as is the case, for instance, of the relationship between social security coverage and the rates of contributions, or that between public spending in this area and the total tax revenue of an economy. Therefore, it is worth checking how well some of these relationships do actually exists.

Special attention will be paid to the relationship between social security and public finance indicators because, as Cichon (1997) has recognized, there are two very important reasons for doing so.

First, there is a macroeconomic effect: high public spending on social security will eventually lead to a high level of taxation and contributions to the scheme, if there is a low return on the social security funds.[1] Therefore, from a public finance perspective, there are certain long-term consequences in the ability to sustain the public debt and in fiscal policy. In the short term it remains clear that the costs of operating a social security system depend on the evolution of certain variables such as the rate of economic growth and real wages, as well as certain demographic variables, because the collection of contributions to the system is counter cyclical, i.e. it falls in times of macroeconomic problems. In any case, the aggregate or macro variables, whose performance depends on the public debt and tax rates, will be affected by the government decisions on financial support for social security.

Second, if social security contributions are high and the valuation of the services is relatively low,[2] there could be a possible effect on unemployment or workers moving to the informal sector, which in turn would be taken as a sign that the economy is functioning at less than its optimum capacity. The reactions of beneficiaries towards social security provisions at the microeconomic level are thought to have negative effects at the macroeconomic level, because it has been considered that such benefits create perverse incentives.[3] For example, if benefits were high, workers would not actively seek work with low wages at levels close to or even less than the benefits paid out by social security. This would yield a diminishing participation in the labor market, financed as it should be, by social security payments (as in the case of unemployment benefit or social assistance and early retirement). The resulting increase in the cost of social security would therefore become a negative factor in the competitiveness of the economy and its macroeconomic performance.

In short, the financing of social security, in terms of both the aggregate levels and the particular ways it is collected, has important effects on a country's economic performance.

However, lets take a look at this overview of American social security, examining the macroeconomic relations and reviewing the challenges that countries face in this sphere.

[1] It should be remembered that if a good part of the benefits of government spending on social security is measured in terms of social return, it is possible that the financial return will be low. Nevertheless 'investment' can still be justified in terms of that social benefit.
[2] See the discussion of social security and the labor market in section III.3.2.a
[3] That is a moral hazard problem, as discussed in section III.3.2.d

II.1 Some characteristics of social security systems in the Americas

The basic operating characteristics of the social security systems in various countries of the American continent are shown in Table II.1. The table shows the institutions that provide social security services and the type of provision given. This does not pretend to be a census but to simply include institutions belonging or collaborating with the CISS in some of its activities.

II.1.1 Insurance offered

The characteristics of social security schemes in 38 countries and 81 institutions are displayed in the table. First, it should be noted that the great majority of the institutions (56) and all the countries have cover for old age, disability and death, i.e. a scheme of pensions covering the most traditional risks and eventualities.

Another widely provided form of insurance is for sickness and maternity, covering medical attention, for which there are schemes in all the countries and 55 of the institutions shown in the table.

Not all of the countries cover other provisions listed and the number of institutions involved is lower than in the first two areas of social security. Forty four bodies offer cover for work-related injury, 13 for unemployment, 21 institutions provide family allowances and only in three countries does legislation establish the universality of social security coverage.[4] Unemployment benefits are generally provided under a specific law and are usually reserved for workers covered by particular social security schemes.

Table II.1
Social Security Institutions and Benefits Provided in the American Continent

Country/Institution	Old age, disability and death	Sickness and maternity	Work injury	Unemployment	Family allowances	Social asistence	Universality
Anguila							
Anguilla Social Security Board	•	•					
Antigua and Barbuda							
Antigua & Barbuda Social Security Scheme	•	•					
Argentina							
Administracion Nacional de la Seguridad Social	•	•	•	• (1)	•		
Cooperativa del Personal De los Institutos				•		•	
Sindicato de Empleados de Comercio de la Capital Federal						•	
Instituto Nacional de Asociativismo y Economía Social						•	
Asociación Mutual de los Agentes de los Organismos para la Tercera Edad		•					
Instituto Nacional de Servicios Sociales para Jubilados y Pensionados		•	•				
Aruba							
Sociale Verzekeringsbank	•	•	•	•			
Bahamas							
National Insurance Board	•	•	•				
Barbados							
National Insurance Office	•	•	•	• (2)			
Belize							
Belize Social Security Board	•	•	•				
Bolivia							
Caja Nacional de Salud		•	•				
Sistema Integrado de la Seguridad Social Universitaria		•					

[4] According to Table II.1, only ten institutions provide social assistance, although this number understates the coverage of these kinds of programs because the institutions normally offering such benefits are not part of international social security organizations.

Country/Institution	Old age, disability and death	Sickness and maternity	Work injury	Unemployment	Family allowances	Social asistence	Universality
Instituto Nacional de Seguros de Salud	•	•	•		•		
Brazil							• (12)
Minitério da Previdência e Asistência Social	•	•	•	• (3)	•		
British Virgin Isles							
Social Security Board	•	•	•				
Canada							• (13)
Department of Human Resources & Labour	•	•	•	• (4)	•		
Colombia							
Instituto de Seguridad Social	•	•	•				
Caja Colombiana de Subsidio Familiar					•		
Caja de Compensación Familiar					•		
Superintendencia de Subsidio Familiar	•	•			•		
Costa Rica							
Caja Costarricense de Seguro Social	•	•			•		
Instituto Nacional de Seguros			•				
Junta de Pensiones y Jubilaciones del Magisterio Nacional	•						
Cuba							
Comité Estatal de Trabajo y Seguridad Social	•	•	•				
Curacao							
Social Insurance Bank		•	•				
Chile							
Administradoras de Fondos de Pensiones	•			• (5)			
Instituto de Normalización Previsional	•						
Instituto de Salud Previsional		•	•		•		
Fondo Nacional de Salud		•					
Cajas de Compensación de Asignación Familiar			•	• (6)	•	•	
Mutualidades			•				
Junta Nacional de Jardines Infantiles						•	
Junta Nacional de Auxilio Escolar y Becas						•	
Servicio Nacional de Menores						•	
Organismos Técnicos de Ejecución de Capacitación						•	
Organismos Técnicos Intermedios de Capacitación						•	
Servicio Nacional de Capacitación y Empleo						•	
Servicio de Vivienda y Urbanismo						•	
Dirección General de Deportes y Capacitación						•	
Dominica							
Dominica Social Security	•	•	•				
Dominican Republic							
Instituto de Auxilio y Vivienda	•	•					
Fondo de Bienestar Social de los Trabajadores Hoteleros y Gastronómicos	•	•					
Seguro Médico Para Maestros	•	•					
Instituto Dominicano de Seguros Sociales	•	•	•				
Ecuador							• (14)
Instituto de Seguridad Social de las Fuerzas Armadas	•	•	•				

Country/Institution	Old age, disability and death	Sickness and maternity	Work injury	Unemployment	Family allowances	Social asistence	Universality
Instituto Ecuatoriano de Seguridad Social	•	•	•				
El Salvador							
Instituto Nacional de Pensiones de los Empleados Públicos	•				•		
Instituto de Prevision Social de la Fuerza Armada	•						
Instituto Nacional Salvadoreño de Seguridad Social	•	•	•				
Guatemala							
Instituto Guatemalteco de Seguridad Social	•	•	•				
Haiti							
Ministère des Affaires Sociales	•	•	•				
Honduras							
Instituto Hondureño de Seguridad Social	•	•	•				
Instituto de Previsión Social del Profesional del Derecho	•	•	•				
Instituto Nacional de Jubilaciones y Pensiones de los Empleados y Funcionarios del Poder Ejecutivo	•						
Instituto Nacional de Previsión del Magisterio	•	•					
Jamaica							
Ministry of Labour, Welfare and Sports	•	•	•				
Mexico							
Instituto Mexicano del Seguro Social	•	•	•	• (8)	•		
Instituto de Seguridad Social para las Fuerzas Armadas Mexicanas	•	•	•		•		
Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado	•	•	•		•		
Sistema Nacional para el Desarrollo Integral de la familia					•		
Sistema de Ahorro para el Retiro	•						
Secretaría de Desarrollo Social						•	
Nicaragua							
Instituto Nicaragüense de Seguridad Social y Bienestar	•	•	•		•		
Panama							
Caja de Seguro Social	•	•	•				
Paraguay							
Instituto de Previsión Social de la Fuerza Armada	•	•	•		•		
Peru							
Seguro Social de Salud	•	•	•				
Instituto Peruano de Seguridad Social	•	•	•				
Puerto Rico							
Fondo del Seguro del Estado	•	•	•	• (9)	•		
St. Kitts y Nevis							
Social Security Board	•	•					
St. Vicent							
National Insurance Scheme	•	•	•				
St. Lucia							
National Insurance Scheme	•	•	•				
Trinidad and Tobago							
The National Insurance Board	•	•	•				
Turks Isles							
National Insurance Board	•	•	•				

Country/Institution	Old age, disability and death	Sickness and maternity	Work injury	Unemployment	Family allowances	Social asistence	Universality
Uruguay							
Banco de Previsión Social	•	•	•	• (10)	•		
Caja de Jubilaciones y Pensiones Bancarias	•						
Caja de Jubilaciones y Pensiones de Profesionales Universitarios	•	•					
Caja Notarial de Jubilaciones y Pensiones	•	•					
USA							
Social Security Administration	•	•	•	• (7)	•		
Venezuela							
Instituto Venezolano de Seguros Sociales	•	•		• (11)			

Source: La Seguridad Social en América 1994, Study Series 12; Inter-American Conference on Social Security, Secretariat General; and SSA, 'Social Security Systems Throughout the World' (2002).

(1) The benefit is four months salary for contributions between 12 and 23 months; eight months salary for contributions between 24 to 35 months; and 12 months salary for contributions of 36 months or more.
(2) The benefit is 60% of average income for the first ten weeks, and 40% for the remaining 16 weeks.
(3) The benefit is for four months, continuous or alternate.
(4) The benefit ranges, depending on the rate of unemployment in the region, between ten and 20 weeks employment covered during the previous year. Minimum employment of 15 hours weekly.
(5) Depends on the administration of the pension fund.
(6) Not specified.
(7) The benefit is approximately 50% of income according to state formulas. The basic minimum weekly benefit is between US$5 and US$69 in 60% of the states, and the maximum benefit ranges from US$96 to US$423 in the rest of the states.
(8) Unemployment benefits do not exist, nevertheless the Federal Labor Law provides dismissed workers with three months salary plus 20 days salary for each year worked.
(9) The benefit is 50% of income for a period of 13 to 26 weeks.
(10) The benefit is for those who are totally unemployed and is 50% of the average income over the previous six months. If the unemployed worker is married and has family responsibilities, the benefit goes up by 20%.
(11) The benefit is only provided in the case of layoffs and amounts to the equivalent of 60% of the reference salary and cannot be less than 60% of current minimum wage.
(12) In the case of Brazil, it is the Ministério da Saúde and the Ministério da Previdência Social that cover the whole population.
(13) In the case of Canada, there is the universal pension that applies to all of its residents, and a pension based on income that corresponds to those with salaries as well as the self-employed.
(14) In article 29 of the Constitution, it is established that social security is a right of all Ecuadorians.

One interesting point, as shown in Table II.1, is that in general there are several organizations in each country providing social security benefits but the people covered turn out to be different, generally speaking, for each institution.

In many countries there are several special schemes offering benefits different to those established by national legislation. Because these schemes usually cover employees in the public sector or state companies, it is often possible, at the regional levels of the government, to consider these plans more as private schemes along the lines of what a particular company may set up for its employees. Nevertheless, in the majority of cases, these individual schemes are complementary to, rather than instead of, the national system, and their financial solvency is guaranteed by the government.

Here it could be argued that it is different interest groups in each country who have acted to pressurize local governments into setting up a collection of benefits provided specifically to each separate group and that the existence of these systems does not necessarily mean that the institutions, acting separately, operate in a more efficient way.

II.1.2 Social security and incentives to work

Mulligan and Sala-i-Martin (1999, 1999a, 1999b) have recently suggested that the evaluation of theories about the existence and nature of social security should start from an analysis of the common and recurring features in the real world, focusing on certain key characteristics of the schemes. Following their suggestion, Table II.2 continues by showing some of the relevant features that seem to arise wherever there are social security systems, in relation to two areas: (a) how beneficiaries obtain access to the provisions; and (b) the incentives either to retire or to work.[5]

The first column shows the year in which the relevant social security law was first introduced (all in the twentieth century).[6] Some of the common and recurring features that reveal much about the nature of social security systems, above all in respect to ways of financing them through taxes on income, are as follows:

a) Pensions are linked to retirement.

In the majority of the countries represented in Table II.2, older workers have to retire from the labor market in order to be able to claim their pension (18 operate this way as opposed to nine who do not, which is to say 66 percent). This is shown in column (1). On the other hand, column (2) shows if there are any economic incentives to retire in the country in question: in the majority of cases there are, and this retirement generally takes place at 60, as is shown by col-

Table II.2
Social Security Programs on the American Continent

Country	First Law (C20th)	Coverage	(1) Is retiment necessary ?	(2) Are there economic incentives to retire?	(3) What is the retirement age?	(4) Are pensions related to past earnings?	(5) Are pensions related to previous work? How many years?	(6) Are they wage financed?	% workers	% employers
Antigua	1972	E			60	S	C	S	3	5
Argentina	44	E,S	N	S	60(M)	S	3	S	11	16
	46				55(W)					
Bahamas	56	E,S	S	S	65	S	C	S	3.4	5.4
Barbados	37	E,S			65	S	C	S	3.15	3.15
Belize	79	E,S	S		60	S	C	S	A	A
Bermuda	67	E,S	N	65	N	C	S	A	A	
Bolivia	49	E, industry			55(M)	S	C	S	10	2
		Commerce, mining, government			50(W)					
Brazil	23	E, Industry & commerce			65(M)	S	C	S	9-11	20
	34	S (sp), P			60(W)					
Canada	27	(1) all	N	S	65	S	S	N	3.5-7.0	3.5
	37	(2) E,S	S	S	65	S	S	S		
Chile	24	E (vol) S	S		65(M)	C	C	S	10	0
					60(W)					
Colombia	46	E, industry & commerce	N	S	60(M)	S	C	S	3.3	10.12
		S(sp) P(exc) agriculture			55(W)					
Costa Rica	41	E (vol), S	S	D	57-65	S	C	S	2.5	4.75
Cuba	21-56	E,S, cooperatives	S	S	60(M) 55(W)	S	2	N	0	14

[5] A finding in Table II.1, and not pointed out by these authors, is that in the majority of countries there are various institutions offering social security benefits, as opposed to one single national institution, and quite often this is through special schemes with benefits different to those established by national legislation in each country.

[6] It is important to mention that to simplify the data, in Table II.2 reference is made only to the pensions system as if that represented the entire social security system.

Country	First Law (C20th)	Coverage	(1) Is retiment necessary ?	(2) Are there economic incentives to retire?	(3) What is the retirement age?	(4) Are pensions related to past earnings?	(5) Are pensions related to previous work? How many years?	(6) Are they wage financed?	% workers	% employers
Dominica	70	E, apprentices			60	S	C		3	7
Dominican Republic	47	E,P, etc, (exc) S, white collar	S	S	60	S	C	S	2.5	7.5
Ecuador	35	E, industry, commerce, agriculture	S	S	55	S	C	S	6	2.4
El Salvador	53	E. industry, commerce, S	S	S	60(M) 55(W)	S	C	S	5.5	5.5
Grenada	69	E			60	S	C	S	4	5
Guatemala	69	E, large firms (Sp) P	S		60	S	C	S	1.5	3
Guyana	44	E,S (>min w)	N		60	S	C	S	–	–
Haiti	65	E, (sp) P			55	S	C	S	2-6	2-6
Honduras	59	E,S (sp) P (exc) casual workers	S		65(M), 60(W)	S	C	S	1	1
Jamaica	58	E,S	S		65(M) 60(W)	S	C	S	A	2.5
Mexico	43	E,cooperatives			65	S	C	S	2	8.75
Nicaragua	55	E, (exc) temporary, etc	S		60	C	S	S	1.75	3.5
Panama	41	E, etc (sp) P (exc), agriculture, casual workers		S	60(M), 55(W)	S	C	S	6.75	2.75
Paraguay	43	E, (sp) P, railroads	N	S	60	S	C	S	9	12
Peru	36	E, vol, S	S		60(M) 55(W)	S	Cov	S	13	0
St. Kitts & Nevis	70	E (vol), others	S		55,62	S	C	S	5	5
Saint Lucia	70	E, apprentices	S		60	S		S	5	5
Saint Vincent	70	E			60	S	C	S	2.5	3.5
Saint Tome & Principe	79	E, (sp) S	N		65(M), 60(W)	S	C	S		
Trinidad & Tobago	39 71	E Poor residents	S	S	60		C	S 2.8		5.6
USA	35	E (exc), casual workers, agricultu-re limited, S, etc	N	S		S	Cov	S	6.2-12.4	6.2
Uruguay	28	E,S	S		60(M), 55(W)	S	3	S	15	12.5
Venezuela	66	E, (exc) S, temporaries, casuals workers	N	D	60(M), 55(W)	S	C	S	1.9	4.8

A = Quantity determined by earnings.
Y = Yes
N = No
M = Men W= Women
E = Employees
S = Self-employed
P = Public
(sp) Special system
(exc) Exclusion
(vol) Voluntary
D = Incentive for deferral or retirement pension
C = Related to years of contributions

I = Related to years of insurance
Cov = Related to years of coverage
C = Equal to the total amount of contributions
For the first column: 34: 1891; 46: 1889; 91: 1898
For column (1): 63: necessary if pension is drawn at age 65; 65: may work until 65 if less than 40 years of contribution necessary for length of service pension; 86: not required if worked for a new employer and after six month wait; 116: gets pension from age 40 if retired, otherwise from 50.
For column (4): 64: related to national average wage.

Source: Sala i Martin (1996) and SSA, 'Social Security Systems Throughout the World' (2002).

umn (3). This means that social security schemes introduce pressures that reduce the likelihood of workers accepting jobs after a certain age. As Sala-i-Martin notes, the schemes are clearly about stopping older workers from working.

b) Pensions are linked to previous wages

Column (4) in Table II.2 shows whether pensions are tied to workers' income from their time in the labor market. Most of the countries (33 versus 1) effectively take into account workers' former wages when assessing their future pensions.

c) Pensions are linked to work history

In order to claim the benefits from retirement, workers are required to contribute for a specific period of time. This is true for all the countries shown in Table II.2 (Column 5) although there are wide variations in the amount of contributing years required. For example, in Argentina and Mexico at least ten years of contributions are required in order for the claimant to qualify for any benefit. In Chile it is 15 years and in Paraguay 25.

d) Pensions are financed with payroll taxes

As can be noted from the table in all but a few countries pensions are financed by payroll taxation. In most of the cases the burden is shared between workers and employers, while in a few cases the tax is collected in its entirety either from the employer or the worker. The table also shows the payroll tax rates that both parties have to pay, which differ between countries. A letter A in this column indicates that contributions are not based on a percentage of the wage but rather a certain amount depending on the level of income.

II.1.3 Shares of social security financing

At this point it is possible to ask who bears the main burden of social security financing? Table II.3 shows the distribution of social security spending and revenues in various countries of the continent.

It has to be noted that, in general, and taking social security as a proportion of Gross Domestic Product (GDP), revenues are lower than expenditure, and thus there tends to be a deficit in social security finance, which implies that a part of the cost of the benefits for present recipients will be paid by future generations.

The larger share of revenues comes from employer's contributions, whilst the share met by the government and employees is roughly similar.

II.2 The macroeconomic context of the challenges faced by the American social security systems

The current social security schemes, especially those for pensions, arose in a context where the experiences of the Second World War had strengthened certain social bonds and most of the countries had to rebuild their economies with limited resources. The choice of priorities regarding social security systems was crucial for the development of subsequent supplementary schemes. The framework within which these schemes were developed was characterized by almost full employment and the belief that there was no contradiction between social security and the functioning of the economy; then, there was a virtuous circle in which both were mutually strengthened.

However, this context has changed over recent decades. The existence of these pension schemes and the maturity they have achieved in terms of both growth and their guarantee of some kind of benefit, is precisely one of the developments that has, in good part, has transformed these macroeconomic conditions.

The original conditions have changed. The reality today is one of high unemployment, the development of new types of work, a high proportion of the labor force

Table II.3
Contributions to Social Security (SS) Financing, 1970-1996

% PIB			% INGRESOS			
Country	SS Costs	SS Revenues	Employers	Employees	Government	Other revenues
Argentina	7.5	7.1	46.3	32.3	16.1	5.3
Bolivia	3.6	3.0	43.6	26.5	20.1	9.8
Brazil	5.7	5.9	60.8	22.1	7.0	10.1
Canada	16.0	17.4	14.6	10.1	44.4	30.9
Colombia	5.6	2.8	45.1	19.7	17.7	17.5
Costa Rica	8.2	7.6	40.6	26.2	13.9	19.4
Chile	12.6	14.9	22.8	24.9	36.1	16.2
Dominican Republic	2.1	2.4	62.3	16.7	—	21.1
Ecuador	2.5	4.8	34.4	33.4	9.4	22.7
Mexico	3.3	3.3	61.7	21.2	14.4	2.7
Nicaragua	15.9	3.1	47.2	17.5	13.8	21.5
Uruguay	13.0	12.9	38.2	30.0	31.2	0.6
USA	14.3	14.2	35.3	28.8	19.9	16.0

Source: International Labor Organization: The Cost of Social Security and the IMF: Government Finance Statistics Yearbook, various years.
Spending on social security as a percentage of GDP includes the cost of medical assistance, benefits in kind, financial benefits, total benefits, administration costs, transfers to other systems and other costs.
Social security income as a percentage of GDP comprises the contributions from employers and employees, taxes and special duties assigned to social security, the involvement of other public institutions, rent on capital, transfers to other systems and other income.
Employer contributions refers to the sum of the contributions that the employer pays as a percentage of the total social security income that the government receives.
Employee contributions refers to the sum of employee contributions as a percentage of the total social security revenue that the government receives.
Participation of the government in social security revenues includes all the payments made by central government and authorities.
Other revenues includes interest on capital, net of the costs.

involved in the informal sector, the labor market becoming more flexible, the incorporation of women into the labor force and a trade-off between social progress and economic growth. It has even been considered, as was reported earlier this chapter, that in some cases the social security system is considered to be a threat to competitiveness and employment.

On the other hand, it has been said that social security spending, in particular on pensions, should be restructured in such a way as to take into account various challenges, including (Gillion, 2000): the extension of the coverage to all members of the population; the protection against poverty in old age, during disability or on the death of the family breadwinner; the provision, for those who have been making contributions, of an income that truly replaces what is lost on voluntary or involuntary retirement; that income to be linked to inflation in such a way that, at the very least, it does not lose its purchasing power; and the creation of an environment to develop voluntary retirement provisions.

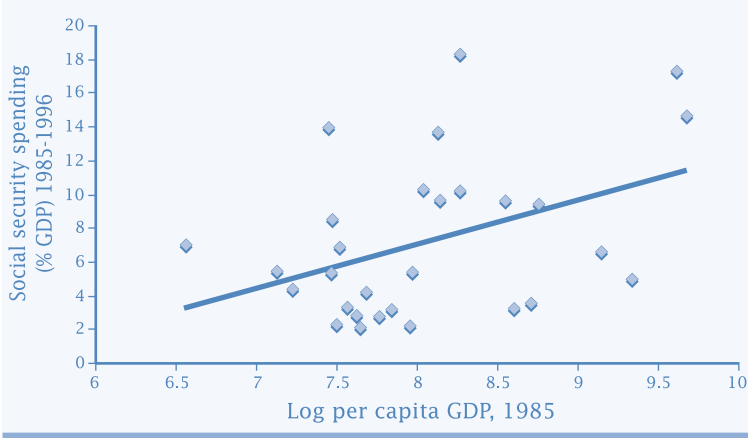
Without a doubt, among the main challenges that institutions such as the CISS have to face are the extension of coverage of social security schemes, and the provision of satisfactory and quality services.

Of course, every social security reform should be carried out in such a way as not to create more social and financial problems for the country in question, which demonstrates the importance of analyzing the evolution of certain key variables at the macroeconomic level and the extent to which such patterns may signal more financial problems for the systems in the American continent.

II.2.1 Social security and macro conditions: some important relationships

This section looks at certain national social security statistics in relation to other kinds of macroeconomic or demographic data, establishing connections that may be important to take into account.

Figure II.1 Social Security Spending and National Income



Source: Calculations using data from ILO (2000) and Penn World Table (2002)

a) Social security spending and national income

Social security systems, in general, have been introduced once a certain level of national income has been reached, allowing for the financing of those schemes. This means that the wealth of a nation is considered to determine its spending on social security. A higher level of income and a more equal society brings greater social cohesion and solidarity, thus satisfying the needs for equality that come from healthier and more productive societies (Deaton, 2001; Wilkinson, 1992, 1996, 2000; Kawachi, Kennedy and Wilkinson, 1999). Hence, it would be reasonable to assume that the more developed a society is, the more it will demand increased and better social security services.

Figure II.1 shows the relationship between social security spending[7] as a proportion of GDP during the period 1985-1996 and the per capita GDP in 1985, among the countries of the Americas.[8] As can be seen, there is a positive relationship between the two variables.[9] It is also possible to observe wide differences between countries, both in terms of income and their spending; this means that countries with similar levels of income can spend very different proportions of that income on social security, which suggests that such spending depends not only on national income, but also on the political priorities in play.

Thus, even though there is scope for some countries to escape the predominant tendency, it is still the case that the relationship in the figure points to the obvious problem of how countries with less income might finance systems which provide beneficiaries with real and meaningful benefits; that is to say, how can they dedicate a large amount of resources to social security without damaging other connected macroeconomic areas? It is also clear that there is a problem of how social security systems can grow in times such as the 1980s when economic development in the region came to a halt.

Before concluding this section, it should also be pointed out that the evidence is not altogether clear in establishing if it is economic growth that stimulates social security demand, or vice versa, that is to say social security demand stimulating economic growth. The little available knowledge on the topic suggests that the answer depends to a large extent on the characteristics of each country (see, for example, on Europe, Herce *et al* 2001).

[7] From this point onwards, the figures are for all aspects of social security spending, i.e. pensions, health and other benefits.

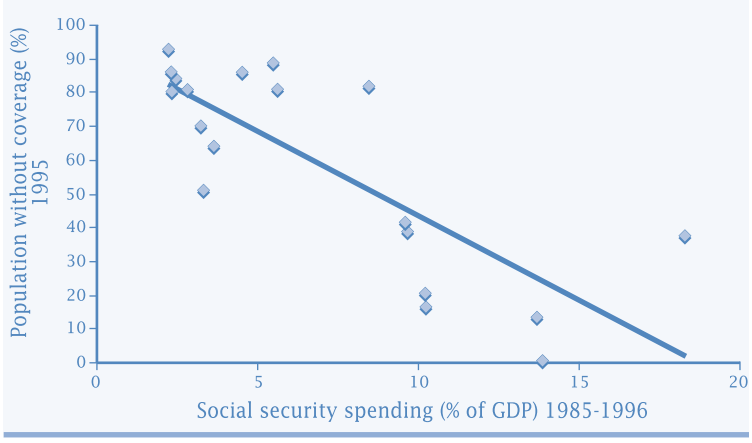
[8] The natural logarithm of per capita GDP is drawn because the use of the logarithm scale, besides providing a graphic that is more compact and easier to view, presents the units of difference in the GDP per capita in percentage terms. For example, a difference in the graph between 7.5 and 8.0 is equivalent to approximately 50 per cent.

[9] Spearman Correlation 0.32, 5% significance.

b) Social security spending and coverage

The level of coverage offered by a social security system is, of course, another important variable to emphasize. On the one hand, the spending on these programs indicates the level of a country's development and the priority that the government gives to social security. On the other hand, the extent of coverage indicates how effective that country has been in achieving the ideal targeted by the society.

Figure II.2 Social Security Spending and Population without Coverage



Source: Calculations using data from ILO (2000)

The provision of wide coverage is one of the objectives of any just social security system, since this means that those who need them most receive such services and to some extent it means a redistribution of benefits between different income groups. Social security coverage can take three dimensions (ILO, 2000): (1) the extent to which it offers means of protection, for example benefits in the event of accidents at work or incapacity (although not old age); (2) the effective amount of coverage, which can be very modest even though it includes a high share of the population and many eventualities; and (3) the categories of those covered by protection, i.e. to whom and how many these benefits are provided.

Without wishing to skip over these details in the definition of coverage, Figure II.2 shows the relationship between social security spending and an aggregate average of the population without cover in the American countries. It is clear that more spending means less people without coverage.[10] Nevertheless, as can be observed, there is a great dispersion of coverage and a wide margin in the effectiveness of spending, which is reflected in the extent of that coverage. For example, some countries spend about three per cent of GDP on social security and some 80 per cent of the population is without cover, while others spend around seven per cent of their GDP, that is to say more than double, and yet still have 80 per cent of the population without cover. Differences like this are attributable not only to efficiency of spending, but also to the different schemes that operate in each country and the structure of the labor markets. This last issue will be taken up in a later chapter.

According to Mesa-Lago (1994), the low level of coverage in the Latin American countries is due to three factors. The first is the high rate of deductions from wages. As will be demonstrated later, real wages have not grown in recent years. A high payroll tax rate can lead to workers leaving the formal sector in favor of the informal one . The second factor is the high cost involved in detecting and monitoring the collection of contributions from so many self-employed workers, domestic workers and workers in small companies, among others. And thirdly, the benefits for these groups are very low and therefore so are the incentives to take part in social security schemes.[11] All of these problems are exacerbated in rural areas with dispersed populations, limited accessibility, few service infrastructures and cultural, linguistic and socioeconomic barriers.

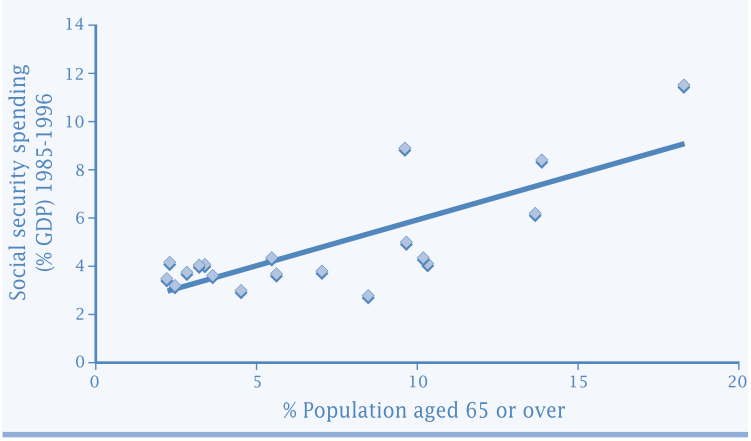
c) Demographic aspects

As is frequently acknowledged, demographics, i.e. the relative composition of young and old population, is a determining factor in social security spending, especially in the area of pensions. The age dis-

[10] Spearman correlation of 0.76, 1% significance.
[11] These issues will be developed in more detail in the section on the labor market in Chapter III.

tribution within the population is crucial from the public finance point of view as an important part of the contributions are paid during the active working life, while the benefits are received following retirement.

Figure II.3 Older Population and Social Security Spending



Source: Calculations using data from ILO (2000) and CEPAL (2002)

Chapter III of this report will take a deeper look at the implications of an aging population in terms of the fiscal sustainability of social security systems. In this section the analysis will be limited to the relationship between the demographic importance of the older population and social security spending.

As can be noted from Figure II.3, the larger the share of older population, the higher the spending on social security.[12] This relationship is consistent with many theories on the existence of these kinds of program.

d) The labor market

One important source of social security funds is the payroll taxes from the labor market, both workers and employers. It is widely acknowledged that a system financed through taxes on wages can reduce the employee's demand for labor, encouraging the reduction of formal employment (with coverage) and increasing the informal sector (without coverage). In turn, this leads to a reduction in the hiring of more educated workers and a fall in labor productivity (World Bank, 1994).[13] Although certain studies of developed countries have shown that there is no long-term effect of payroll taxation on unemployment (Nickell 1997), this may not be the case in Latin America where the labor markets work differently to those of the developed countries[14] since, as will be analyzed in Chapter III, real wages have decreased and the informal sector has grown.

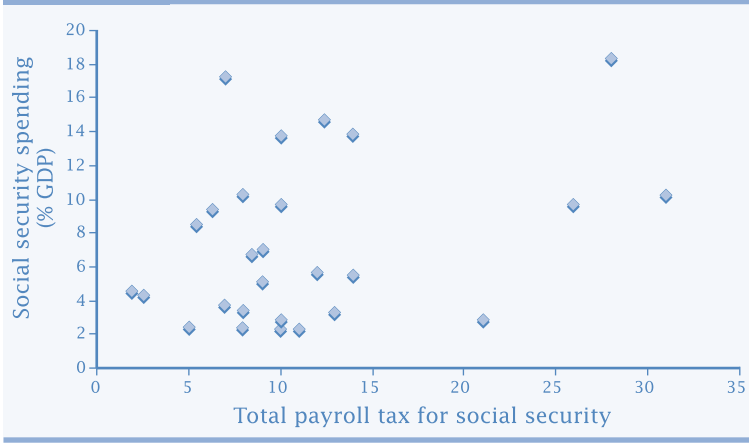
Figure II.4 shows that there is no positive relationship between social security spending and the total rate of contributions from workers and employers in a number of American countries.[15] This means that greater deductions from wages for social security do not necessarily lead to more spending in this area, which indirectly implies that the coverage of schemes does not seem to be mainly explained by the size of contributions.

e) Taxation and social security

The endurance of any tax system depends on how widely the taxes are applied, the level of the rate structure and the efficiency of the tax administration (Pita 1993). This poses a particularly important problem in Latin American countries, these being inefficient in tax collection and the design of their tax structure. This implies that as long spending in these countries is not reduced, the revenue collected will continue to be insufficient to finance the expansion of their social security programs. This problem is aggravated by var-

[12] Spearman correlation 0.6064, 1% significance.
[13] Workers in the informal sector may have lower productivity as they have less access to capital, to training and to a range of market products.
[14] Cartaya (1992) shows how taxes on wages represented a third of the cost of formal employment in Venezuela. Gruber (1997) concluded that the changes in the system of payroll taxes had no effect on the efficiency of the Chilean labor market, since the reduction in taxes led to an increase in wages rather than an increase in employment.
[15] Spearman correlation 0.22, 10% non-significance.

Figure II.4 Social Security Spending and Payroll Taxes

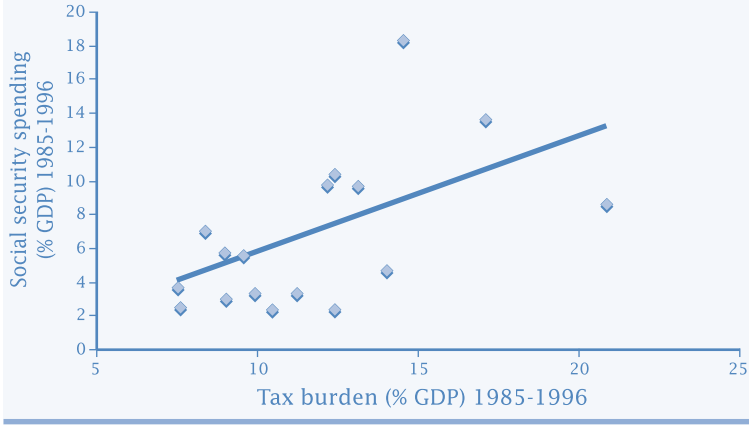


Source: Calculations using data from ILO (2000) and CISS (1994).

ious factors such as tax evasion in the informal sector and frequently within the formal sector itself, the complexity of the tax system, the low level of acceptance of such taxes among the population and the low tax base (Rain, Bes and Febres, 1996; Jorrat, 1997).

Figure II.5 shows the relationship between the tax burden and social security spending in the countries, both represented as a percentage of GDP, based on averages for the period 1985-1996. There is a positive relationship between the two variables.[16] The higher the tax burden, the higher the social security spending.

Figure II.5 Tax Burden and Social Security Spending



Source: Data from CEPAL (various years) and the IMF (various years.)

This finding has implications for the financing of the social security systems. As long as the countries continue to collect low levels of tax revenue, social spending cannot be increased in the amounts required or at least to any substantial degree. Although Latin American countries have made important reforms to increase tax income, evidence shows that this improvement has been at the cost of other objectives, such as simplification or redistribution (Tanzi, 2000). On top of this, the impact of these policies on economic growth is not clear. For example, Escaith and Morley (2001) found a positive effect on growth, while the Inter-American Development Bank (1997) found a very limited effect. If the aim is to be high levels of social security spending, then the state must expand its sources of income.

It has also been shown that in the case of Latin American countries the processes of structural adjustment undertaken by governments have prioritized fiscal cost, relegating social protection to a minor consideration (Lustig, 1995).

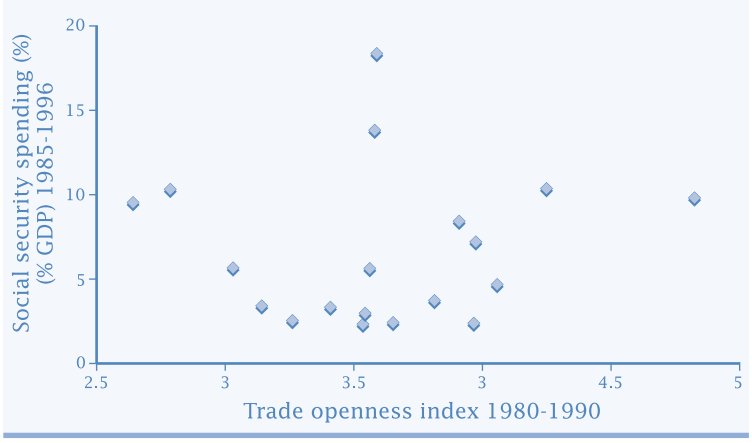
f) Social security financing and globalization.

Nations have become increasingly integrated into the world economy through free international trade during the last two decades of the twentieth century. Although in theory this is meant to offer great long-term benefits to underdeveloped countries (Fujita, Krugman and Venables, 1999), nothing is clear in the short term and there exists the perception that in reality it is the developed countries reaping the greater part of the benefits. This has led various social interest groups to hold large demonstrations against the process. Although the empirical evidence on the persistence of difference in income between countries is not conclusive, since results are highly sensitive to measurement problems, there seems to be a consensus that the only way to close the income gap is by implementing policies for growth and development in

[16] Spearman correlation 0.48, 5% significance.

the less developed countries (Pritchett, 1997; Sala-i-Martin, 2002; Schultz, 1998).

Figure II.6 Trade Openness and Social Security Spending



Source: Calculations using data from Penn World Table (2002) and ILO (2000).

The globalization process undoubtedly raises questions about the role played by the government in terms of redistribution, especially in the area of social security, since economic integration partly reflects the desire for increased welfare through the free market. On the other hand, however, the process reduces the scope for governments to plan and implement certain policies. This happens when the structural adjustment brought on by integration leads to great changes in the labor market where different groups of workers are displaced and have to look for new jobs. The international empirical evidence (Rodrick, 1997, 1998) has shown that, contrary to what may have been expected, economic integration has led to a general increase in total government spending, particularly spending on social security. This could be explained because of the risk implied in opening up markets. Given that greater risks are involved, societies demand that government take on a greater role, through the public purse, as a form of compensation for them accepting such levels of risk.

The degree of trade openness in the continent, especially in Latin America, has grown drastically in recent years. After implementing policies aimed at industrialization through import substitution, something that led to an overprotected and inefficient industry, in addition to a huge state intervention in all areas, the countries of the region have undertaken the task of implementing programs of structural adjustment and economic and trade opening policies.

It is, therefore, relevant to analyze the relationship between social security spending and the level of trade openness (measured as the logarithm of the total value of imports and exports as a proportion of GDP) in various countries of the continent as presented in Figure II.6. As can be seen, it is not possible to establish a significant relationship between the two variables.[17] This goes against the previously cited international evidence, discovered by Rodrick (1997, 1998) and subsequently presented by other international organizations (ILO, 2000). The conclusion here though is that there is no positive relationship.

One explanation comes from the fact that, as is well established, the countries of Latin America have implemented wide-ranging reform programs through which they have not only opened up their economies to international trade but also sought to reduce the size of the state, following guidelines of strict economic efficiency. The reduction of public spending plays a key part in this.[18] In this context, therefore, the role of the state is limited to providing assistance only to those groups with the lowest incomes.

On the other hand, even though there are trading blocs, such as the European Union, that have developed towards more

[17] Spearman correlation 0.14, not significant at 5%.

[18] Rodrick (1998) shows that in economies that are extremely open commercially, it is very difficult to compensate, through taxes on capital, the losses suffered by workers because of external risks and He suggests that one solution would be to establish mechanisms making it more difficult for capital to move out of the country. This proposal, although it has been put forward in various forums, has been consistently rejected as an option by governments in the area.

advanced forms of integration that include social aspects, where the international institution can be used to buffer internal conflicts, the trading blocs on the American continent are still at this point limited only to commercial issues. Of course it is accepted that the priority given in each country to social security depends solely on that country, it might, nevertheless, be considered possible for the international community to provide some kind of social assistance in critical situations in one state and help to maintain the benefits underwritten by employment and social security contracts (CISS, 1997).

II.2.2 Social security spending determinants: a statistical analysis

One important question that arises from the overview presented in this chapter is to determine whether the relationships that have been identified are sustained when various factors are considered simultaneously, rather than just examining the statistical evidence of one relationship in isolation.[19] To the extent that an analysis of this kind confirms findings up to this point, and helps to identify other important relationships, the analysis will have arrived at a much more solid understanding of what determines social security spending in these countries, i.e. about the demand for social security services.

With that aim, this section returns to the relationship examined in previous sections, but this time using more formal statistical analysis. In doing so, the analysis will rely on panel data, i.e. where there is information taken from different points in time for each of the countries involved. In particular the analysis will look at patterns from 12 nations throughout the continent for which information is available from 1971 until the year 2000.[20]

Table II.4 shows the statistical relationship between social security spending, expressed as a percentage of GDP, and other macroeconomic and demographic factors, as well as the geographic location in the continent. The results are discussed below.

The existence of a larger participation in the labor market (the variable 'labor force' in the table) leads to greater social security spending. Nevertheless, this relationship is not sustained when the USA and Canada are excluded from the sample, the coefficient changing its sign and becoming not significant. This could be due to the fact that the labor force employed in the informal sector is of major importance in the countries of Latin America and the Caribbean. Due to this fact, a large base of contributors to the social security system does not necessarily exist. The corollary of this would be that it is worker participation in the formal sector that gives rise to the demand for social security services.

On the other hand, the relationship between social security spending and commercial openness has no statistical significance as it was shown in previous sections, even when controlled for other factors as in Table II.4.

The level of the tax burden is an important factor in determining social security demand, sustaining the positive relationship found in previous sections. In particular, in order to increase social security spending, countries have to find a way to expand their taxable base, which could mean encouraging the informal sector to formalize itself. In this way they would get a larger base of contributors that would allow an increase in social security spending.

The size of per capita GDP continues to have a positive relationship to social security spending, even though it is controlled by other factors. The higher the per capita GDP, the greater the spending on social

[19] The reader who is familiar with the statistical method will recognize that this refers to the determination of partial correlation coefficients, not simple ones, i.e. carrying out regression analysis.

[20] The countries are: Argentina, Bolivia, Brazil, Canada, Colombia, Costa Rica, Chile, Ecuador, USA, Mexico, the Dominican Republic and Uruguay. The sources of information are Penn World Table, ILO, IMF and CEPAL (various years.)

Cuadro II.4
Social Security Spending (% GDP) and its Relation to Macroeconomic Variables

	(1)	(2)	(3)	(4)+	(5)+
Labor force	0.108 (0.0538)	0.0872 (0.0487)	0.0895 (0.0490)	-0.023* (0.075)	-0.021* (0.077)
International trade	0.0006* (0.0019)	0.0015* (0.0019)	0.0014* (0.0020)	0.0002* (0.0019)	
Tax burden	0.1231 (0.0385)	0.1528 (0.0369)	0.1511 (0.0371)	0.1240 (0.0480)	0.1199 (0.0480)
GDP per capita	0.0294 (0.0048)	0.0225 (0.0052)	0.0224 (0.0052)	0.0218 (0.0054)	0.0218 (0.0055)
Total payroll tax			-0.015* (0.037)		-0.002* (0.0403)
Population 65+		0.4124 (0.1406)	0.4124 (0.1408)	0.0218 (0.0045)	0.3351 (0.1574)
North	0.0059* (0.0105)	-0.004* (0.0090)	-0.004* (0.0091)		
Central	0.0379 (0.0141)	0.0430 (0.0121)	0.0434 (0.0121)	0.0570 (0.0114)	0.0571 (0.0117)
South	0.0363 (0.0079)	0.0319 (0.0068)	0.0334 (0.0077)	0.0457 (0.0056)	0.0459 (0.0069)
χ^2 (significance)	212.8 (0.00)	320.78 (0.00)	319.02 (0.00)	140.77 (0.00)	135.54 (0.00)
R^2	0.3289	0.4121	0.4107	0.2837	0.2768
N	360	360	360	300	300

Prais-Winsten regression with panel data. Standard errors corrected for heteroscedasticity in parentheses. Time and constant effects not reported.
* No statistical significance
+ The sample does not include the USA and Canada.

security. For this reason, using the terminology of public finance, it could be claimed that this relationship follows Wagner's Law, which states that the demand for certain goods and services is determined by the level of a nation's wealth. This also reinforces the idea that it is necessary to implement measures for sustainable growth in order to see more social security spending and services in the future.

The payroll tax rate paid jointly by the employer and the worker does not appear to have a decisive effect on spending. The different payroll tax rate paid by the worker and the employer were each included as individual factors but nevertheless had no statistical significance.

Also included in the equation is the share of the total population aged 65 years and over. As it can be seen in Table II.4, the relationship between an older population and social security spending is positive and significant. This confirms the validity of previous arguments in the sense that societies with a large population of older people tend to spend more on social security.

The variables connected to geographical regions turn out to be significant, except for the North American countries. This shows that the countries of Central and South America tend to spend more on social security as a percentage of GDP.

A previous section discussed the importance of the contributions made by government in the financing of social security systems. The question would be to determine if greater state participation in financing programs leads to a greater level of social security provision (measured by total spending). A problem with this exercise is that it could be argued that in reality there exists a causal relationship in both directions. For example, planning for how much spending would be required on pensions and health is determined by the demographic pyramid, which in turn deter-

Table II.5
The Relation between Social Security Spending and Goverment Contributions to Social Security

	SS	Ing Gob	SS+	Ing Gob+
Labor force	0.0530 (0.0276)		-0.0445* (0.0425)	
Tax burden	0.3267 (0.0261)	1.0787 (0.1916)	0.4515 (0.0457)	1.2924 (0.2882)
GDP per capita	0.0136 (0.0039)	0.0394 (0.0212)	0.0103 (0.0041)	-0.0036* (0.0185)
Total payroll tax		-0.1482* (0.1035)		-0.1092* (0.1050)
Population 65+	0.6429 (0.0859)		0.6244 (0.0919)	
Population of working age		-0.2012* (0.1649)		-0.0094* (0.1779)
Spending on SS (%GDP)		-0.0149* (0.5795)		0.5296* (0.5758)
Central	0.0509 (0.0072)	-0.1320 (0.0381)	0.0617 (0.0063)	-0.1130 (0.0357)
South	0.0319 (0.0054)	-0.0005* (0.0332)	00428 (0.0041)	0.0111* (0.0314)
χ^2 (significance)	1117.64 (0.00)	239.17 (0.00)	525.70 (0.00)	120.82 (0.00)
R^2 N	0.7562 360	0.3972 360	0.6366 300	0.3134 300

Regression in three stages (3SLS) with panel data. Error standard in parentheses.
* No statistical significance
+ Sample does not include the USA and Canada

mines how much public resources are needed to cover such requirements.

For this reason, Table II.5 provides a further analysis, where social security spending and the proportion of the income provided by the government are shown simultaneously.

As can be seen, in terms of what determines spending, the factors previously identified and discussed remain in force. As regards the governments' participation in the financing of social security, a larger general taxable base leads to an expansion of social security income provided by the state. Nevertheless, any relationship with the other variables under consideration turns out to have no significance, especially if the USA and Canada are excluded from the sample.

FINANCING PROBLEMS AND OPTIONS FOR A SOLUTION

The last two decades have witnessed a movement of fundamental reform among social security systems. In the American continent, the schemes of numerous countries have been significantly modified: Argentina, Bolivia, Colombia, Costa Rica, Chile (a pioneer of reforms), El Salvador, Mexico, Nicaragua, Peru and Uruguay. In addition to these, possible changes are being discussed in Brazil, Honduras, the Dominican Republic and Panama (Mesa-Lago, 2001), while in the United States a process of evaluation of proposed changes is underway.

The main motivation behind these and many other reforms implemented or proposed in other parts of the world is the problem of financial viability undermining the pay-as-you-go system (PAYG), which has until now been the model of social security followed by almost all the countries that have a public pension system.

Why do countries face problems in financing their social security systems? What factors exacerbate such difficulties? What are the options for solving financial imbalances? What questions need to be raised regarding each of the options and how much is known about these options?

These are the questions to be addressed in this chapter. First, there is an explanation of the two main approaches to social security financing. This is followed by a discussion of the sources of their respective financial difficulties, which reveals that the most important factor – although not the only one – seems to be the aging of the population. Next, there is an outline of measures proposed as possible solutions, analyzing the pertinent questions that arise in each case. Finally, there is a look at what is known about these measures, particularly about their real capacity to provide solutions to the problem of financing such systems.

III.1 The two main approaches to social security financing

There are two fundamental approaches to the financing of the social insurance schemes and the payment of benefits: the PAYG scheme and the system based on individual saving accounts.

The PAYG scheme is a system of set benefits, that is a system whereby the amount a worker will receive on retirement is established in advance. This scheme is financed principally through contributions made by workers active in the labor market and by the employers, and these funds pay for the pensions of those who have already retired.

On the other hand, in the individual accounts system the worker is forced by law to make contributions into his/her personal account. On reaching retirement age the accumulated capital and interest finance the pension. In this case, it is the contributions that are set. This is a system whereby each person pays for their own retirement, according to what they have managed to save.

Although both systems normally pertain to pension benefits, the basic arguments could be also applied to other areas of insurance, such as health or even unemployment: contributions from those who do not experience a loss of income due to any of these eventualities can finance those who do actually suffer adversity; or then again, an individual could be forced by the government to build up an individual savings account to provide cover against certain eventualities, for example unemployment.

In both financing schemes – PAYG and individual accounts – contributions to the fund are made in part by the worker, the employer and the government, generally in

set amounts as percentages of wages. As was shown in Table II.3 of the previous chapter, the contributions differ from country to country, even though, as will be seen in the next chapter, from the point of view of public finance it may not be the legal allocation of responsibility that is important, but rather the total amount of payroll tax, i.e. the sum of worker and employer contributions.

Before moving on to explain the possible reasons behind the financial problems in both systems, it is opportune to draw attention to the classification of pension schemes put forward by Mesa-Lago (1998), who made the distinction between public and private plans: the public plan is, effectively, based on set benefits but can be financed through PAYG schemes or through partial, collective capitalization, while the private plan is based on set contributions and a financial scheme of individual capitalization. According to Mesa-Lago the dichotomy between PAYG and capitalization is not totally valid as public systems include the possibility of partial collective capitalization, as in the case of Colombia, which in his opinion it is not then a 'pure' pay-as-you -go scheme.

III.1.1 The pay-as-you-go scheme and the main sources of its financial problems

This kind of scheme has a built-in fundamental problem due to its original design: the contributions paid into the system by the first generation of workers who retired were lower than the benefits and services that they received. For example, Rosen (1999) reports that Ida Fuller, the first beneficiary of the social security system in the USA, which started operating in 1939, paid only US$25 of contributions into the system but received pensions to a total value of US$20,897, living as she did to the age of 99 years.[1]

Due to this problem the social security system has a debt that is intrinsic since at its inception there are no charges but it does have to begin paying out pensions straight away. The problem can be restricted, but politically it is extremely difficult to eliminate it altogether, which is why all the schemes throughout the world were born with this implicit debt, contingent on the later development of certain key variables of the social security system.

In particular, when the ratio of pensioners to workers is small, the system is financially sustainable since the revenue from payroll taxes used to pay for the pensions is greater than the total benefits that have to be paid out.

Nevertheless, and precisely due to this ratio, a crisis of financing social security is inevitable in the long term when there is a reduction in the rate of population growth, and the population therefore begins aging, since there are proportionally less children and more elderly recipients.

In particular, Samuelson (1958) showed that in a mature PAYG system, the return to the funds paid into social security is equal to the growth rate of the population plus the growth rate of workers' productivity: the more young workers enter the market and become productive, the better the benefits for those who have already retired from the labor market. As Thompson explains (1998), this means that a lower birth rate implies that a PAYG system has to increase the rate of contributions in order to maintain its financial sustainability in the long term.

It should be stressed that a problem of slow productivity growth could also cause serious difficulties in financing PAYG schemes. Other possible sources of problems will be examined later in this chapter, though these are perhaps less important than that of population aging.

III.1.2 Possible problems with individual accounts schemes

The fact that in systems of compulsory saving in individual accounts the benefits

[1] The social security program created in 1935 in the USA was like a system of private insurance, completely funded by workers' savings. In 1939 the system was converted into one of pay-as-you-go (Rosen, 1999).

and services are not set does not imply that this type of scheme is free from financial difficulty.

As a starting point, as the large majority of countries first adopted the PAYG system as a national policy, the reform of those systems to the present ones based on capitalization in individual accounts gives rise to the problem of what to do in the face of liabilities on pensions made to those who for many years had paid into the previous scheme.

Then, the problem arises of financing the transition from one scheme to other. This problem can certainly be overwhelming, to the extent that it is sometimes not worth making any social security reform. But the important issue is that, however it is done, that intergenerational debt has to be paid through a PAYG system, the pensions of those older members of a society who made contributions to the previous scheme must be paid using resources generated by those who presently pay taxes. So in order to finance this component in setting up a scheme of individual accounts, there arises exactly the same problems that face PAYG systems, and population aging in particular increases that initial difficulty.

On the other hand, and because of its very nature, a system based on individual savings accounts fails to achieve the redistribution function of social security. For this reason, different governments have set up minimum benefit guarantees for pensioners to try and maintain some degree of social redistribution. In the case where a worker is unable to save enough to reach this minimum level, the state makes up the difference.

Obviously, a weak capital market that pays low returns on the funds saved means that it is more likely that the state will have to intervene to provide the guaranteed minimum. But once again, whatever the financing is used in this area of the scheme, it has to be done through pay-as-you-go. The benefits that the state guarantees to pensioners have to be paid for by workers still active in the labor force, and this implies that demographic developments continue to affect the solvency of social security.

As the introduction of individual capitalization means in reality a reform of traditional social security based on pay-as-you-go, the following chapter examines in more depth certain crucial variables, whose condition or evolution cause many of the financing problems in systems based on the sharing of benefits. The problematic of social security based on individual savings accounts will be examined later on, in a section on the privatization process of social security systems.

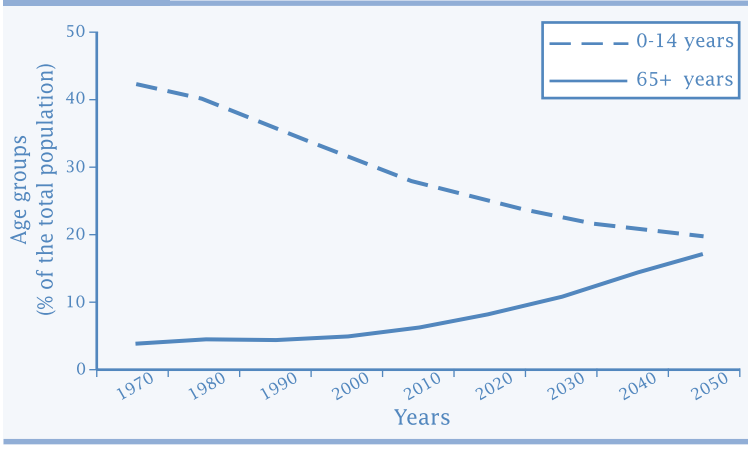
III.2 Some recent developments giving rise to financing problems

The pension systems operating through PAYG schemes can be confronted with financial problems for a number of reasons, among which are the following: (a) The combination of a falling birth rate and increasing life expectancy, which sparks a process of aging of the population structure; (b) slow productivity growth, which is reflected in unsatisfactory wage increases and low per capita GDP; (c) the growth in fiscal imbalance, although derived from causes outside the sphere of social security, limits the economic and political ability of a government to take on further debt;[2] (d) erroneous decisions in the management of the system's reserves during its early days, investing in low return assets; (e) deficiencies in the system's planning, that leads to incorrect actuarial calculations on the rates of contributions and benefits; (f) political decisions to arbitrarily change the structure of contributions and benefits.

This chapter examines recent developments of some of the variables related to the points mentioned above and which have forced various countries of the continent to either carry out or consider changes to their social security systems.

[2] One should bear in mind the implicit debt that arose due to the payment of benefits to the first generation of beneficiaries.

Figure III.1 Demographic Trend in Latin America and the Caribbean



Source: Calculations using data from CEPAL (2002) and U.S. Census Bureau (2000)

There is also a discussion of other factors that can provoke financial difficulties for the provision of other social security benefits, such as medical services, which in the majority of countries exist under the heading of Sickness and Maternity Benefits.

III.2.1 The population aging process

Although the problems of social security financing have features that are specific to each country, one factor that is common to the entire region is the change in their demographic evolution.

This change is characterized by a transition from an era of high birth and death rates, to a new one in which both rates have dropped, leading to a substantial increase in life expectancy. This combination of factors means, on the one hand, and inexorable and rapid process of demographic aging and, on the other, a changing trend of epidemiological incidence, which is expected to result in higher demands for the health services finance provided by social security.

The increase in the share of the population who reach retirement age will increase the need for pensions and health services which, under the schemes that predominate today, will have to be financed by an economically active population which grows ever smaller. On top of this, the aging of the population implies a greater incidence of illnesses such as cancer or heart disease, for which health-care is more costly than for the ailments suffered by a younger population.

According to the CEPAL (2002), the so-called process of population aging is present in all the countries on the continent: the proportion of children to the total population is tending to decrease, while the proportion of adults over the age of 65 is tending to increase.

Figure III.1 shows the evolution of the population aged between 0 and 14 years, and over 65 from 1970 up to the forecast for 2050. As can be seen, the general trend is for a relative fall in the former and an increase in the latter.

In 1990, the world average for population aged 65 and over was nine per cent, while in the American continent it was just five per cent. It is estimated, however, that the figure for this region will increase to 17 per cent by year 2050 (CEPAL, 2002).

The average percentage of inhabitants of the American continent aged between 0 and 14 years in 1990 was 36.5, while this figure is expected to fall to approximately 19 per cent by 2050 (CEPAL, 2002). As will be explained later, the data are relevant because this second phenomenon could partly provide an opportunity to solve the financial problem affecting social security due to population aging: there will be more older adults to care for, but less children.

Using population data from the year 2000 and projections up to 2050, it is expected that the dependence ratio of the population aged 65 and over on the population that is economically productive (between 15 and 64) will increase in the area (Table III.1). For example, one of the extreme cases is Cuba, where in the year 2000 the population aged over 65 represented 13.8 per cent of the economically active population. By 2050 it is expected

that the ratio will increase to 45 per cent. In other words, while in 2000 Cuba had about seven individuals of productive age for every one person over 64, by 2050 it is expected that there will be only two adults of productive age for every elderly citizen. This trend, which is repeated to a greater or lesser degree in every country of the region, points to a considerable increase in the fiscal responsibility of those individuals active in the labor market over the next five decades.

Among the countries which expect a large increase in the rate of old age dependency are: Panama, Puerto Rico, the Bahamas, the Netherlands Antilles, Brazil, Mexico, Suriname, Martinique, Guadeloupe, Cuba, Trinidad and Tobago, Barbados and Guyana. Differences between 2000 and 2050 range from 19.9 to 37 percentage points, depending on the country.

The countries where it is expected that changes in the old age dependency rate will be lower during the period 2000-2050, include: Guatemala, French Guyana, Haiti, Uruguay, Bolivia, Paraguay, Nicaragua, Honduras and Argentina. In these cases, the predicted rate of increase is between 8.0 and 13 per cent.

Despite this, it may be argued that a sole preoccupation with the rate of old age

Table III.1
Rate of Old Age Dependency
(Population aged 65 or over/population aged between 15-64)*100

Country	Indicators		Difference
	2000(a)	2050(b)	a-b
Guayana	81.7	118.7	37.0
Barbados	86.8	122.7	35.9
Trinidad and Tobago	78.9	113.5	34.6
Cuba	76.2	107.4	31.2
Guadeloupe	73.2	102.7	29.5
Martinica	73.8	102.3	28.5
Suriname	64.5	92.4	27.9
Mexico	52.3	74.7	22.4
Brazil	51.2	72.9	21.7
Netherlands Antilles	55.0	76.6	21.6
Bahamas	50.6	71.8	21.2
Puerto Rico	56.5	76.8	20.3
Panama	48.5	68.4	19.9
Belize	45.5	64.6	19.1
Costa Rica	44.7	63.0	18.3
Dominican Republic	43.3	61.5	18.2
Colombia	43.9	62.1	18.2
Ecuador	43.4	61.3	17.9
Chile	46.1	63.6	17.5
Saint Lucía	44.1	61.6	17.5
Venezuela	41.9	59.3	17.4
Jamaica	46.1	63.3	17.2
Peru	41.1	57.8	16.7
El Salvador	38.2	53.1	14.9
USA	48.7	63.5	14.8
Argentina	41.4	54.4	13.0
Honduras	31.3	43.9	12.6
Nicaragua	28.7	40.3	11.6
Paraguay	27.7	38.5	10.8
Bolivia	27.8	38.2	10.4
Uruguay	41.3	51.6	10.3
Haiti	26.5	36.5	10.0
French Guyana	26.6	36.5	9.9
Guatemala	22.6	30.6	8.0

Source: Data from CEPAL (2002) and U.S. Census Bureau (2000).

dependency gives only a partial picture of a more general demographic problem. In particular, even if a relative increase in the population aged over 64 is expected, there is also the expectation of a sizeable reduction in the child population (those aged between 0 and 14 years), a population that is considered to be the other group that depends economically on active workers.

The dependency ratio of the child population, aged between 0 and 14 years, on the economically productive population, aged between 15 and 64 (Table III.2), is expected to experience large reductions in Guatemala, Nicaragua, Honduras, Haiti, Bolivia, Belize, Paraguay, El Salvador and Peru. The expected change in the rate of child dependency for those countries is a decrease of between 27.6 and 48.9 per cent. The Bahamas, Argentina, Chile, Brazil, Guadeloupe, Uruguay, Puerto Rico, the Netherlands Antilles, Trinidad and Tobago, Martinique, Cuba, Barbados and the USA are, on the other hand, among those nations where the forecast is for a lesser decrease in the rate of child dependency between 2000 and 2050, with a reduction of between 3.4 and 13.5 percentage points, with the exception of the USA, where a small increase of less than one percentage point is predicted.

Table III.2
Rate of Child dependency
(Population aged 0-14/ population aged 15-64)*100

Country	Indicators		DifFerence
	2000(a)	2050(b)	a-b
Guatemala	82.5	33.6	-48.9
Nicaragua	78.4	33.0	-45.4
Honduras	75.7	32.3	-43.4
Haiti	71.6	33.0	-38.6
Bolivia	70.2	32.7	-37.5
Belize	66.8	30.6	-36.2
Paraguay	69.2	33.3	-35.9
El Salvador	59.9	32.3	-27.6
Peru	56.7	31.1	-25.6
Venezuela	55.2	31.5	-23.7
Ecuador	54.9	31.3	-23.6
Mexico	53.3	31.0	-22.3
Dominican Republic	53.8	32.0	-21.8
Saint Lucia	51.6	31.0	-20.6
Suriname	47.6	27.0	-20.6
Jamaica	51.3	30.8	-20.5
Colombia	52.2	32.0	-20.2
french Guyana	57.0	36.8	-20.2
Costa Rica	51.8	32.0	-19.8
Panama	49.5	31.2	-18.3
Guayana	47.4	30.0	-17.4
Bahamas	45.4	31.9	-13.5
Argentina	44.2	31.5	-12.7
Chile	44.2	31.7	-12.5
Brazil	43.5	31.8	-11.7
Guadeloupe	37.0	28.3	-8.7
Uruguay	39.8	31.3	-8.5
Puerto Rico	36.2	27.9	-8.3
Netherlands Antilles	36.4	28.1	-8.3
Trinidad and Tobago	36.5	28.3	-8.2
Martinique	33.9	27.0	-6.9
Cuba	30.6	26.8	-3.8
Barbados	30.0	26.6	-3.4
USA	32.1	32.9	0.8

Source: Data from CEPAL (2002) and U.S. Census Bureau (2000).

The reduction in the rate of child dependency is relevant because a trend in that direction reduces the need for services for this sector of the population, principally those of education and health, with the likely effect of freeing resources that can then be used to pay for benefits for the older population. In the following chapter there is a more in-depth examination of some of these considerations.

Adding together the rates of old age and child dependency, one gets a rate of total dependence, defined as the sum of the population aged between 0 and 14 and those aged 65 and over, divided by the population aged between 15 and 64. This figure integrates the effect of both the projected reduction of child dependency and the expected increase in old age dependency. Even taking into account both effects, it is expected that about half the countries in question will experience an increase in their total rate of dependency during the period 2000-2050 (Table III.3): Barbados, Cuba, Trinidad and Tobago, Martinique, Guadeloupe, Guyana, the USA, the Netherlands Antilles, Puerto Rico, Brazil, the Bahamas and Suriname are among the countries which will see a major increase in the ratio of total dependency, while Belize, Paraguay, Bolivia, Haiti,

Table III.3
Rate of Total Dependency
(Population aged 0-14 plus population aged 65 and more/population aged 15-64)*100

Country	Indicators		Difference
	2000(a)	2050(b)	a-b
Barbados	45.0	77.6	32.6
Cuba	44.5	72.5	28.0
Trinidad and Tobago	46.3	72.7	26.4
Martinica	50.9	72.4	21.5
Guadeloupe	51.3	72.0	20.7
Guyana	55.1	74.8	19.7
USA	51.3	66.9	15.6
Netherlands Antilles	48.3	61.5	13.2
Puerto Rico	52.2	64.1	11.9
Brasil	51.4	61.4	10.0
Bahamas	53.7	61.4	7.7
Suriname	56.3	63.6	7.3
Chile	55.3	60.3	5.0
Uruguay	60.5	62.5	2.0
Panama	58.3	59.9	1.6
Argentina	59.8	60.1	0.3
México	61.0	61.1	0.1
Costa Rica	59.9	58.4	-1.5
Colombia	59.9	57.7	-2.2
Saint Lucia	60.7	57.8	-2.9
Jamaica	63.1	59.9	-3.2
Dominic Republic	60.7	57.0	-3.7
Ecuador	62.7	57.0	-5.7
Venezuela	62.6	56.2	-6.4
Peru	64.6	55.5	-9.1
Guyana Francesa	63.9	53.5	-10.4
El Salvador	68.3	55.7	-12.6
Belize	74.2	55.1	-19.1
Paraguay	75.5	50.2	-25.3
Bolivia	77.4	50.2	-27.2
Haiti	78.2	49.6	-28.6
Honduras	82.1	51.1	-31.0
Nicaragua	84.1	50.2	-33.9
Guatemala	89.2	48.3	-40.9

Source: Data from CEPAL (2002) and U.S. Census Bureau (2000).

Honduras, Nicaragua and Guatemala are among those countries where the expected reduction in child dependency is such that it would lead to a significant decrease in the overall rate of dependency.

As explained at the beginning of this chapter, under a PAYG system to finance social security, population aging brings a reduction in the return to the funds accumulated through the contributions of the active workforce. This means that in order to meet the financial pressures of the system, payroll taxes must be increased.

To clarify this idea, suppose that S is the number of pensioned workers and P is the amount that each one receives. The total amount of benefits to be paid is therefore S x P. On the other hand, if the total number of workers employed in the market is represented by L, the average wage of each worker is W, and the rate at which they contribute to the social security system is T, then the total amount collected by the system is T x W x L.

Then, in a 'pure' and mature PAYG scheme,[3] the pensions of those retired are paid out of what is paid in by the active workforce, and thus:

$$T \times W \times L = S \times P$$

From this the rate of contribution needed for the system to be solvent can be deduced:

$$T = (S/L) \times (P/W)$$

Note that the contribution needed depends directly on the rate of old age dependency, which is equal to (S/L), i.e. the number of retired people[4] over the number of active workers. When that figure increases, T also has to be increased. This is precisely the principal problem facing social security at the present time.

At this point a fundamental question arises: if one of the reasons given to justify the state intervention in making social security compulsory is that individuals are short-sighted and do not pay sufficient attention to how they can sustain themselves when older, then were those who designed the original PAYG schemes also short-sighted as they failed to foresee the fall in the birth rates that is bringing serious financial problems to such systems?

The truth is that during the first half of the twentieth century what was known about the relationship between demographics and the economy did not allow anyone to foresee the large decrease in the birth rate, particularly since the beginning of the 1970s in certain developed countries. As Becker notes (1991), the traditional Malthusian theory of population growth suggested that economic progress would lead to larger families, i.e. a higher birth rate. The increase in the cost of an individual's time – which helps to explain why the birth rate has fallen in the modern world – is the result of two relatively recent phenomena in world history: the great increase in the levels of education and the growing participation of women in the labor market. As Becker points out, both phenomena help to explain why families have preferred to have less children, but ones who are more educated as well as better cared for in other ways. This new factor in world development brought about a change in the relationship observed up to the beginning of the twentieth century: economic progress translated into population growth. In the present conditions progress brings lower birth rates.

To put it briefly, the idea of PAYG in the first systems of social security made a lot of sense and it would have been very difficult during the first third of the last century to imagine that what could undermine them – a steep fall in the birth rate – was actually going to take place throughout the world by the end of the that century.

It is important to make clear that although the evolution of the demographic

[3] For when the system is new, paying the benefits incurs debt, as was explained above.

[4] It is being assumed here that all older people are pensioners but the formula would remain valid even if not all the elderly received a pension, as long as the coverage of the social security system is similarly distributed between young and old.

factors described above can signal a problem for financial sustainability in the provision of social security in the countries of this region, it does not necessarily mean that the difficulty is insurmountable.

The long-term viability of the way in which social security is financed in a country not only depends on the characteristics of that country's demographic and epidemiological evolution, but also, as was mentioned earlier, on its fiscal system, the characteristics of the labor market, the expectations of the performance of macroeconomic variables and, of course, the structure of the social security system itself.

III.2.2 Demographics, fiscal pressures and the financing of social security

The answer to the question of whether the demographic change implies a financing problem in the long term depends on a thorough study of the interaction between the factors mentioned above, which is why certain researchers have developed an approach for analyzing the sustainability of social security financing, based on calculations of what have been called 'generational accounts'.

Introduced by Auerbach, Gokhale and Kotlikoff (1991), this approach consists of forecasting elements restraining the government's budget, in present net values. This restraint means that the present value of net government costs, for example from now until a hundred years time,[5] should be equal to the total present value of the net tax revenue to be collected by government over the same period, plus the government's net wealth at the time of making the calculation, that is the value of its accumulated assets net of previous debts. In other words, the government cannot expect to pay out more than it expects to take in over and above what it has in net savings.

From the fiscal point of view, during their life a person will pay a set amount of taxes and receive a set amount of benefits. In a particular year, the difference between what is paid out by the individual and what is received (net collection) differs depending on age. For example, net taxes paid are expected to be higher around middle age, the most economically productive period of life, and lower (in fact negative) during childhood and old age, when the person receives considerable benefits from education, medical care and pensions.

The purpose of the generational accounts approach is to look at the public finance budget problem in terms of a comparison between the net taxes that the present generations will pay to the government during their lifetime and those that future generations will pay. If the present value of the payments that this latter group will pay is larger than the value to be paid by the former, then there can be said to be an imbalance in the sense that in order to meet the present government liabilities, the future generations will have to shoulder a larger financial burden than the present ones. This means that the citizens of the future will pay more to receive the same level of education, health and pension benefits, among other services.

Two of the most important elements in this calculation are the demographic evolution and the social security contingent liabilities. This approach also takes into account other fiscal imbalances when considering financial pressures on governments – imbalances that do not necessarily originate in the financing of pensions or health services. For this reason it is possible to measure the financial impact of (a) and (c) mentioned in Section III.2 of this chapter among the factors creating problems for the sustainability of the social security systems.

[5] The number of years to be forecasted should be equal the most advanced age reached by at least one member of the population. In other words, if in the base year of the calculation, there is at least one person who is 109 years old, but no one is 110, then the maximum possible age is 109. The forecast is made for the same number of years in order to be able to include the full life expectancy of those people who were born in the base year.

Table III.4
Generational Accounts for Countries of the Region,/a 1995
(thousands of US Dollars 1995)

country	Source	Born in 1995	Future generations	Absolute imbalance	Imbalance (per cent)
Argentina	Kotlikoff and Leibfritz (1998)	73.7	117.2	43.5	59.0
Brazil	Kotlikoff and Leibfritz (1998)	71.5	135.0	63.5	88.8
Canada	Kotlikoff and Leibfritz (1998)	145.3	145.6	0.3	0.2
	Oreopoulos and Kotlikoff (1996) /b	–	–	–	100.3
Mexico	Sales y Videgaray (1999)	64.0	57.0	-6.9	-10.9
	Schwartz-Torre (2002)	107.6	153.2	45.6	42.3
USA	Kotlikoff and Leibfritz (1998)	86.3	130.4	44.1	51.1

/a. The figures have been adjusted to eliminate differences in per capita income between the countries.
/b. In this study, the authors did not adjusted by per capita income. The absolute amounts have not been included because they are not comparable with the absolute amounts of the other studies. Nevertheless, the figure for relative fiscal imbalance is indeed comparable. Even though in this study the base year is 1994 and not 1995, this should make little difference in terms of making the comparison.

In particular, when calculating government revenue not only should earnings from social security be considered but also those from other taxes, such as those on consumption or income. For example, a forecast of structural fiscal weakness makes it difficult to finance pensions because the government has less scope for borrowing in order to cover the contingent liability of the social insurance schemes. Similarly, this approach includes in the government's costs not only spending on social security but also spending in other sectors, such as physical infrastructure.

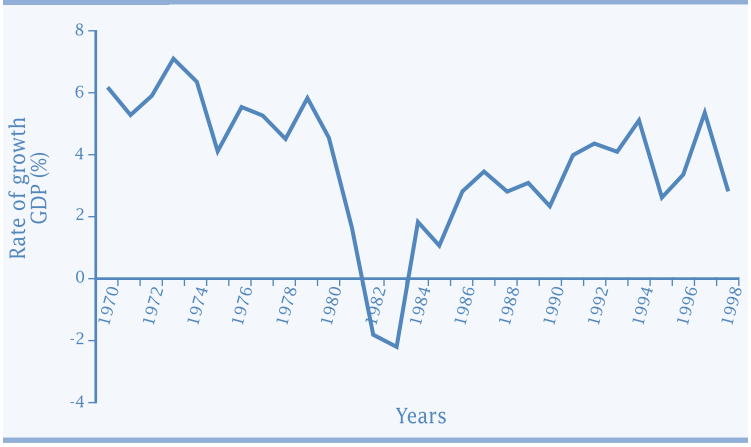
With the exception of the USA and Canada, there are few formal studies following this approach for the countries of the continent. Nevertheless, from the analyses of some cases, it is already possible to deduce some relevant figures.

Table III.4 displays some results obtained for a limited number of countries in the region. It compares the net tax payments (taxes minus transfers) that a person born in 1995 will pay over their lifetime, with those that will be paid by a typical member of future generations. The absolute fiscal imbalance is measured in terms of the difference between both payments.

As can be seen, the country with the largest imbalance, in both relative and absolute terms, is Brazil. According to figures published by Kotlikoff and Leibfritz (1998), in that country it is anticipated that someone born in 1995 will, over their lifetime, make net payments of US$71,000. In comparison, a typical member of future generations will have to pay US$135,000 over their lifetime; that is US$63,500 or 89 per cent more than someone born in 1995.

Argentina and the USA show a similar intergenerational shift in their fiscal burden. If the present structure of taxes and benefits is maintained, over their lifetime the average member of future Argentinean generations will have to pay $43,500, or 59 per cent, more net taxes than is estimated for someone born in 1995. In a case that is quantitatively similar to Argentina, in the USA the fiscal imbalance between generations is calculated at $44,100 or 51 per cent.

Figure III.2 Rate of Growth of Gross Domestic Product (GDP) in Latin America and the Caribbean



Source: Data from the IMF (various years.)

The empirical evidence provides contrasting results for Mexico and Canada. In the case of Canada, Kotlikoff and Leibfritz (1998) make calculations that show no sign of fiscal imbalance between present and future generations, finding a difference of only 0.2 per cent. However, Oreopoulos and Kotlikoff (1996) calculate that the generations born in Canada after 1994 will pay 100 per cent more net taxes over their lifetime than the generation born in 1994.

Regarding Mexico, Sales and Videgaray (1999) find a negative fiscal imbalance, i.e. present generations will pay more net taxes over their lifetime than future generations. In particular, the average member of the generations born in Mexico after 1995 will pay 11 per cent less net tax than someone born in 1995. Schwartz and Torre (2002) reached completely the opposite conclusion. They gathered new data and found a positive fiscal imbalance, whereby over their lifetime Mexican generations born after 1995 will have to pay 42 per cent more than those generations born in that year. The difference in the analysis is explained because the latter study is based on demographic projections in which population aging is faster, and the authors consider a lower value of the government oil reserves.

Even though the generational accounts have not been calculated for the majority of the countries in the region, results obtained from the small sample of studies suggest the presence of considerable intergenerational imbalances. This means that more resources will have to be employed in the search for new alternatives for financing social security. The predominance of PAYG systems in which the younger generations finance the retirement of the older ones in the face of chronic population aging will lead sooner or later to considerable fiscal pressure on the provision of social security services.

On the other hand, there also exists a consensus that social security should continue to function as a redistribution tool. Bearing this in mind, a viable long-term solution must combine fiscal balance with the redistributive function of social security. It should be pointed out though that some studies have shown that the demographic change is so pronounced that any reasonable economic model would generate a fiscal dilemma of the first order (Kotlikoff, Smetters and Walliser, 2001).

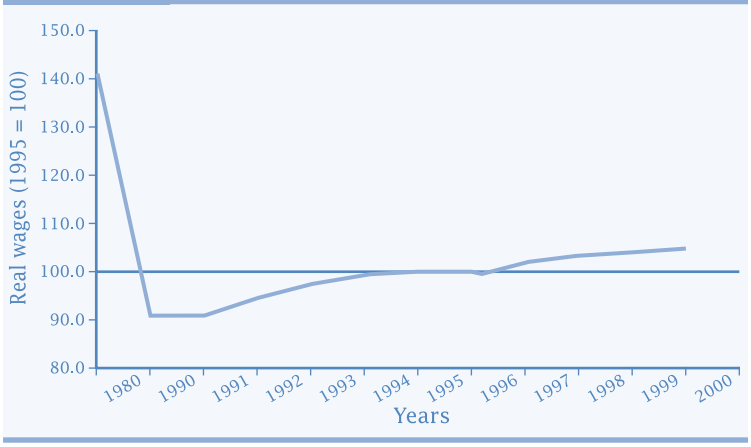
III.2.3 Productivity growth and the maintenance of social security

As was shown in Chapter II, there is a high correlation between a country's national income and its spending on social security: the higher the income, the higher the spending. Per capita GDP is an indicator expressing, among other things, advances in productivity. Nevertheless, a higher income is only achieved after long periods of continuous economic growth, hence if the growth of per capita GDP stagnates, the financing of social security systems will also slow down, creating problems in meeting the liabilities undertaken by the system.

Figure III.2 shows the evolution of GDP growth rates in a selection of Latin American and Caribbean countries. The steep fall experienced at the beginning of the 1980s is very evident. The high growth of the 1970s belongs to a past that is lost.

On one hand, fluctuations in growth during the 1980s affected people with lower incomes and therefore more investment in social security was needed in

Figure III.3 Evolution of Real Wages



Source: Data from CEPAL (2002).

order to guarantee a minimum standard of living to this sector of the population and thus maintain social and political stability. On the other hand, there was also the need to implement policies aimed at sustained growth, usually based on orthodox structural adjustments whereby it is necessary to reduce the size of state intervention. The evidence shows that these adjustment measures adversely affected those on a lower income to a greater degree (Lustig, 1998) and this led, at least in the short term, to a perverse cycle and an obstacle to any improvement to the social security system.

As adjustments continue to be necessary, the problems of low social security coverage and the general lack of finance for the programs remain. In the 1990s there was a slight return to economic growth but at rates lower than those before the crisis. Moreover, great fluctuations in the performance of the economies have become common, and macroeconomic instability has increased.

All of these factors have had negative effects on the expansion of social security financing. Furthermore, in addition to low economic growth the process of commercial opening up has brought the need to implement economic policies to attract foreign capital and to increase competitiveness between countries. Keeping wages low represents an advantage in the competition for resources from overseas but a disadvantage for social security systems, where these are translated in reductions to the base of their financing.

During recent years, the labor market, especially in Latin America, has shown a trend towards either stagnation or a decline in wages and job creation. The 1980s was a period of crisis in which the informal labor market grew in response to the lack of opportunities in the formal market. On the other hand, wages also stagnated as a consequence of the crisis as is shown in Figure III.3, and the trend has not significantly improved.

The decline in wages reflects a considerable drop in productivity at work and of the economy as a whole. For example, in the case of Mexico, Ayala (2000) shows that the total factor productivity fell at an average annual rate of 1.1 per cent in the period 1980-2000. There is no doubt that policies of economic modernization, such as trade openness and economic deregulation, implemented during the 1980s and 1990s have had as their main aim to increase productivity, so it is necessary to review what is actually happening: are, perhaps, these policies causing the lack of economic growth?

On the other hand, the reason behind the stagnation in income could also, to some extent, be due to the de facto freezing of real wages brought about by measures in the 1980s to bring down the high rates of inflation experienced at the time. For example, in Mexico in the second half of the 1980s there was a reduction in real wages to the order of 44 per cent and in contract wages of 40 per cent, including benefits (Aspe 1993). Although inflation has decreased, wages have not returned to their previous levels, in some way serving as an attraction to international investors in search of cheap labor. This has led to much criticism of government policy as the cost of adjustment has fallen especially hard on the workers (Rivera, 1997).

Participation in the labor market has increased in recent years, something that works in favor of the financing of social

security schemes. This phenomenon is attributable to the increase in women who go out to work. Nevertheless, despite this increase in the participation of women in the labor force, the larger percentage of workers who are employed without a wage are women, this being generally double the figure for men (ILO, 2000). Women also represent the larger share of part-time workers. In general, the economic conditions have meant that a larger number of workers are willing to accept part-time, casual or short-term jobs, which result in lower remuneration and social security benefits.

Additionally, as will be seen in a later chapter, the informal sector is very large, especially so in Latin America and hence it is very difficult to collect contributions from the workers and employers who are part of that sector.

This labor market structure has a decisive influence on wage stability and thus on contributions paid into the social security system. How might it be possible to make improvements to protection schemes if wages remain stagnated, given that such wages are the base for contributions? And how would these be possible if, on the other hand, there is an increase in the labor market participation but in ways that evade the mechanisms of social security collection?

Working with the formula developed earlier to determine the contributions needed for the system to be solvent, it should be remembered that this rate depends negatively on the level of wages: $T = (S/L) \times (P/W)$. This means that if wages, W, go down, there will have to be an increase in the rate of collection, T, or a reduction in the amount of pensions, P, in order for the system to remain financially sustainable.

III.2.4 Other problems in financing pensions

As explained at the beginning of this chapter, the funds needed to finance benefits from social security schemes can also be insufficient for other reasons, generally due to the very design of the systems.

In the case of social security based on PAYG schemes, there is a high political risk not covered by any insurance, which arises because members of the congress or legislative power can easily modify taxes and benefits set by law. Because of this, at any given time the workers may not know with any certainty what benefits they will receive (Mitchell and Zeldes, 1996.)

On the other hand, in any system of social security there may be a lack of adequate incentives for those responsible for investing the reserve funds accumulated to do so wisely. On many occasions, in collective schemes, such reserves are invested in assets that, over time, provide very low returns, because those who take the decision think only in terms of personal political advantage, without worrying that they will subsequently have to render accounts. Even in schemes in which funds are managed individually, if it is the state that is responsible for guaranteeing the worker's pension in the case of low return on the fund, this too can generate a process of perverse incentive in which the best investment decisions are not taken because the fund investor knows that if the returns are low, the government will be the one to pay.

It may also be the case, for example, that some special schemes for public employees promise their affiliates benefits that are far too generous, without worrying about the funds available to the scheme. The inability to meet these liabilities creates a major political problem for the central government, which then finds itself forced to bail out liabilities of the institution.

III.2.5 Problems with sickness insurance

The cost of sickness and maternity insurance has risen considerably in many countries across the continent and this trend is expected to continue. In the USA, for example, national spending on health

increased from 5.1 per cent of GDP in 1960 to 12.2 per cent in 1990, while in Canada spending increased from 5.5 to 9.5 per cent of GDP during the same period (Cutler, 1997). In Mexico, it is estimated that medical spending by the Instituto Mexicano del Seguro Social (IMSS) on the pension population will double over the next ten years (IMSS, 2002) rising from roughly US$1.140 to 2.080 billion per year.

The demand for health services is also increasing due to the demographic processes that have been described above, because this means that patterns of sicknesses are changing and moving towards those that are more expensive to care for, as is the case with heart disease, cancer, renal failure and certain others, including diabetes and AIDS.

Another factor that affects the cost of health services in social security systems is the rapid increase in the prices of medicines and medical treatment over the last few years. Medicines are getting better all the time, thanks to technological advances, but at the same time they are becoming more costly. It is not clear at present if the medical improvements of new treatments justify such a rise in costs. In Mexico, for example, the medicines price index has doubled compared to the average consumer price index since 1995 (IMSS, 2002).

III.3 What are the options for resolving the financing problems?

The problem of financing social security is one of the most important challenges facing countries throughout the world. As has been pointed out by IMSS (2002), the public liabilities of these schemes in general exceed the explicit public debt of many nations. In fact this is the norm in developed economies.

For this reason in recent years the debate over options for financing has been intense and many different policies have been proposed to alleviate the financial imbalance that faces the majority of social security systems throughout the world. This chapter looks at some of the most important ones.

III.3.1. Policies that have been proposed to deal with the problems

It is perhaps possible to group together into five main policy categories the particular measures that have been debated in various forums in order to alleviate the financial difficulties that beset social security systems:

a. Increasing the payroll tax

This can be achieved in two ways: (i) by raising the rate of contribution, that is the level of taxation on the wages that are normally used to finance social security; or (ii) by expanding the taxable base. This can be achieved either by investigating better how to avoid tax evasion on the part of workers and employers or by expanding the notion of what concepts integrating a wage can be taxed, for example, in areas where before there may have been exemptions, as in the case of certain payments in kind.

b. Setting limits to benefits or services

This may be achieved in various ways: (i) by reducing the systems' replacement rates, that is the value of the benefits expressed as a percentage of the wages earned during the worker's active life; for example, in the equation to determine the rate of contribution necessary to maintain a PAYG system of pensions, this depended on the factor (P/W), the amount of a retired worker's average pension over the average wage of a worker still active in the labor force, which would then be the rate of replacement. It is obvious from this that a reduction here would help to alleviate the financing of the system. (ii) By raising the minimum age for retirement with pension rights, a measure through which in one move there would be an increase in the proportion of the population who would have to keep working and supporting the

system, and at the same time a decrease in the number of retired people to whom pension benefits would have to be paid. In accordance with the formula referred to above, this would be the same as decreasing the factor (S/L), something that would also reduce the financial pressure on the system. (iii) By establishing extra charges, co-insurance or deductibles for certain services – such as medical benefits – which would reduce the demand for these benefits on the part of those covered, as is the case in private insurance schemes where this type of policy is very common.

c. Increasing the affiliates' valuation of the benefits

The rate of contribution to the system can be perceived by the worker and employer as a net deduction if they do not place any value on the services received in exchange for the tax on their wages. A low valuation of the benefits may lead to a larger number of workers trying to evade their financial responsibilities to the system and this in turn weakens the system. Because of this, different policies aimed at raising this valuation contribute, indirectly, to giving social security more financial solidity. Among others, the following measures may be implemented: (i) linking the contributions better to benefits in actuarial terms so that the contributor is motivated to see the payroll tax as a contribution, not as a tax; for example, if the present value of the pensions that a person will receive is less that the present value of what they will contribute over their active life, their valuation of social security will be low. In order to increase that valuation, it is necessary to implement measures to equalize such amounts. (ii) More power may be given to the consumer-affiliate, for example in the case of medical benefits, they may be permitted to choose the doctor who will attend them, something that again would increase their valuation of the benefit. (iii) The reorganization of the services or administrative improvements that increase the perception of the quality of the service, such as reductions in waiting time for the benefit in question.

d. Increasing funds for social security from other public resources

The government's contribution to worker's savings accounts or to the financing of some insurance systems, like that of health, can be increased by defraying the deficits within the system. In this case, it is necessary to look carefully at how far this is possible and at what type of other general taxation can be used to help finance social security. This might take the form of taxes on income or consumption. Given that many of the countries where the population is aging faster are also experiencing a reduction in the number of births, the total rate of dependency in the population may be decreasing. Thus, it may be possible to release public resources that were previously tied up in health and education of the young and redirect them to cover the needs of the growing number of elderly citizens.

e. Reforming the pay-as-you-go system, or privatizing it

The issue here is a change to a system of individual capitalization in which a person's benefits are financed through legally compulsory saving with private financial institutions. As will be seen later, at this point three questions immediately arise and need to be resolved: (i) How will the transition be financed? That is how will benefits be paid to those who have been paying into the previous system? (ii) How will the private agencies be regulated? (iii) How will the redistributive character of the social security system be preserved?

III.3.2 What are the relevant questions in analyzing each option?

Before reviewing what is known about the real scope of each of these options for alleviating the financial crisis in social security, it is useful to have an analytical reference to understand in general what is gained and what is lost with the proposed policies.

In particular, relevant concepts are being developed for evaluating the impact of the reforms of social security financing, focusing on the impact: (a) on the labor market; (b) on savings and the accumulation of capital in the economy as a whole; (c) in terms of restricting the problems of moral hazard intrinsic to the system; and (d) on the redistributive role of the social security schemes. In other words, it is a search for a guideline which makes it possible to break down, into advantages and disadvantages, each of the measures outlined as alternative solutions to alleviate the financial burden of social security.

These concepts are expanded in this section, and the next chapter will examine in greater depth the existing theoretical and empirical knowledge on the effectiveness of each specific measure.

III.3.2.a Social security and the labor market

The structure of social security benefits and taxes can have important effects on two aspects of the labor market: (i) the general level of employment and the coverage of social security, that is the percentage of the workforce affiliated to the schemes; (ii) the decision to participate or not in the labor market, especially the decision when to retire, which affects the overall level of labor that an economy relies on to produce goods and services.

(i) The level of employment and social security coverage

As seen in Table II.3 in chapter II, the majority of the revenue for social security systems comes from payroll taxation. These taxes are generally based on a percentage of wages, up to a particular upper limit. In addition, the contribution rate almost always contains a breakdown of percentages related to insurance for pensions, disability, unemployment, sickness, maternity, work injuries and other eventualities. Payment gives workers the right to receive the corresponding benefits.

Table III.5 shows, by way of example, the level of total payroll tax in various Latin American countries,[6] giving the percentages paid by the worker and by the employer.

The fiscal burden placed on wages has generally been criticized on the basis that it increases labor costs, which contributes to reducing the competitiveness of a country and thus to a fall in levels of employment in general and in the coverage of social security schemes in particular (Gruber, 1997).

Nevertheless, the reality is that the final impact of these taxes depends on two factors: the value that workers and employers place on the benefits to which their contributions give them a right; and the possibility that the tax can be reflected in lower net wages for workers or in higher gross wages that have to be paid by employers.

(i.1) The importance of taking into account the value of the benefits received

Regarding the first argument, it is useful to ask: for each dollar paid into the social security scheme,[7] do the workers and employers perceive that they get in return a dollar in benefit value? If this was the case, the rate of valuation given to the benefits would be the same as that of the tax, for which reason there would be no impact on the total labor cost nor to the employment level. To give an example: let us suppose a worker is required to pay a tax equivalent to US$3,000 and in exchange is given a voucher for US$3,000 in order to pay for a service that s/he uses. It is clear that in reality this would be paying a person part of their wages in kind, with no effect on the labor relationship: the tax would be a benefit, not a deduction.

[6] Table II.2 in chapter II only reports that part of the taxation that relates to pension schemes, while in Table III.5, as can be seen, other concepts for which there contributions are made have been added, such as housing for example.

[7] Of course, this is just an example. The monetary unit in question could be a peso, a dollar, a real or whatever other currency is used on the continent.

Table III.5
Social Security Contributions in Selected Latin American Countries, 1980-1999
(percentages of wages.)

Country/Year	1980	1990	1995	1999
Argentina				
Contribution of Worker (1)	14.0	16.0	17.0	15.5
Contribution of Employer (2)	43.9	40.4	27.2	31.0
Brazil				
Contribution of Worker (1)	nd	9.0	9.0	9.0
Contribution of Employer (2)	nd	35.8	35.8	22.0
Chile				
Contribution of Worker (1)	nd	21.1	21.1	20.0
Contribution of Employer (2)	nd	10.4	10.4	4.4
Mexico				
Contribution of Worker (1)	5.1	5.1	5.2	5.2
Contribution of Employer (2)	19.0	25.2	27.4	16.0
Peru				
Contribution of Worker (1)	nd	6.0	11.4	13.0
Contribution of Employer (2)	nd	30.8	32.9	15.0

1 This includes pensions in all countries. In Mexico, Peru, Chile and Argentina (in 1999) it includes health; in Argentina social works; and in Chile accidents.
2. This includes retirement pensions in all the countries except Chile; accident insurance in all countries; housing in Argentina, Mexico and Peru (except in 1999); sickness and maternity in Peru. In Argentina it also includes family benefit, unemployment, dismissal funds and sickness and maternity (in 1999); in Brazil it includes education scholarships, SEBRAE, FGTS, INCRA and industrial apprentice benefits (except in 1999). In Mexico it includes nurseries, retirement and payroll taxes. In Peru it includes training and dismissal.
Sources: Tockman and Martinez (1997), and Social Security Administration, USA (1999) Social Security Programs throughout the World.

In the most common case where the value of the received benefit is less than the cost, the difference between the rate of taxation and the evaluation of the service creates pressure on labor costs. In the example given above, if the voucher granted buys only US$2,000 of service, then the difference between what is paid out and what is received (3,000-2,000 =1,000) would be a pressure or tax on wages.

In an example directly related to this subject, in the USA it is estimated that an average contributor to the social security system due to retire in 2010, will have paid over their lifetime US$151,500 in payroll tax into this system, while they will receive benefits in the form of a pension to the value of US$115,200 (Joint Committee on Taxation, 1996).[8] This means that if the amount of total contribution, adding together the contributions of workers and employers, is equal to T, then the pressure to increase labor costs, as a proportion of the wages, would be (1-0.76) x T =0.24 x T, where 0.76 =115,200/151,500 would be the valuation rate of the benefits, expressed as a percentage of the contribution.[9]

In general, if the perceived valuation of the benefits is equal to V, expressed as a percentage of the rate of contribution, then the imposed structure of social security will mean that labor costs will tend to rise in a proportion that is equal to (1-V) x T, that is not in terms of the total amount of payroll tax, but rather in terms of the percentage (1-V) of that.

One point that should be noted here, although it will be discussed in more depth

[8] At present value in 1993 Us dollars.
[9] Assuming that the worker notices that effectively these are the sums involved. If his/her perception of the benefits were less, it would be necessary to lower the percentage. What can be calculated in actuary terms of what will be received and what paid out is not necessarily the same as the worker's perception of the sums involved.

in the following chapter, is that the pressure on labor costs can diminish if the tax rate, T, goes down, but also if the valuation of services, V, goes up.

(i.2) The possibility of passing on the tax through lower wages or unemployment

Including net tax (1-V) x T may not negatively affect employment levels if the costs incurred can be passed on to the workers, at least in part, in the form of lower wages or longer working hours (Gruber, 1994).

On the one hand, employers will try to reduce the number of jobs – that is, their need for workers – in order to avoid increasing costs. To the extent that the state of the economy allows for the replacement workers covered by social security by those who are not covered, or by machines or capital, companies would be able in part to avoid the increase in the wage bill by employing less insured workers or by paying them lower net wages.

The question is then; how easy is it to hire uninsured workers to cover the jobs of those who are insured, or to get machines to do the work of people? Using the terminology of economics, the question is if there is high or low elasticity of substitution between the two types of workers, or if the substitution between people and machines is easy.

The more possible it is to achieve these substitutions between productive factors, the more negative the impact of net social security deductions on employment and net wages, in particular those of workers with insurance.

On the other hand, from the workers' point of view, in order to continue earning the same net income in the presence of a payroll tax, they would have to negotiate an increase in gross wages to compensate for the contribution. To the extent that this is not possible, i.e. the net wage is reduced, then workers would have less incentives to work for the company and therefore the supply for covered jobs will be reduced. The extent this will have an effect on employment depends on how sensitive the labor supply is to net income changes; in the technical language of economics, this is dependant on the labor supply elasticity.

So this means that companies seek to cut net wages or employ less people to avoid an increase in labor costs, while workers try to negotiate an increase in gross income, or shorter working hours, in order to continue receiving the same net amount.

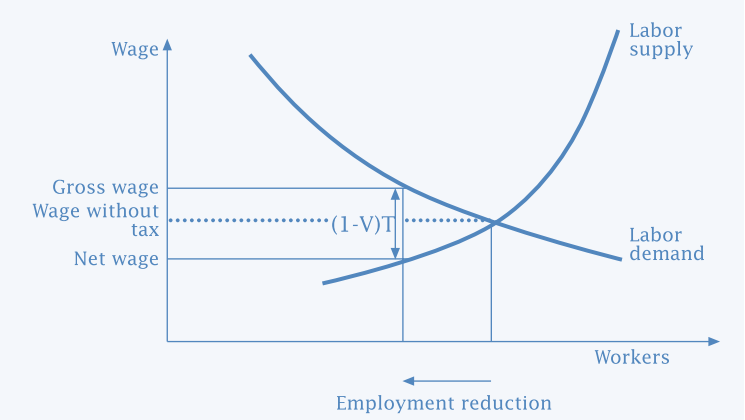
The result of this process clearly, would be a reduction in the general level of employment in the economy[10] and, in particular, in jobs covered by social security.

One important point to note is that changes in both gross and net wages have nothing to do with the fiscal or legal arrangements regarding the proportion of the total contribution to be paid by either worker or employer. To put it briefly, the real incidence in the structure of financing through payroll tax does not have to be the same as that set by law. For example, suppose that by law everyone has to pay seven per cent of his/her wages. If workers were successful in getting an increase in gross wages of more than seven per cent, then they would be transferring part of their contribution to the employers. In the extreme case that their total income increases by 14 per cent, their net salary would remain the same and they would have transferred all of the tax to the employer, i.e. in reality they would be paying nothing. Similarly, if the employer managed to push the wages down by more than seven per cent, they would be making the workers pay a part of the employer's contribution and, in the extreme case, if net wages were reduced by 14 per cent, they would transfer completely their part of the contribution to the workers.

The amounts that the worker and employer effectively pay in payroll taxes can differ greatly from those stipulated by

[10] Because one option for both parties is less work.

Figure III.4 A Payroll Tax Effect on Covered Jobs



The introduction of the net tax (1-V)T leads to reduction in employment, an increase in gross wages paid by the company and a decrease in the wages received by workers.

law and depends on the sensitivities of the supply and demand for work; in other words, how much less the workers would want to work if their wages were lowered and how easy it would be for the companies to use other productive factors in order to replace the labor of those workers that have to pay contributions.

Figure III.4 summarizes the argument that a payroll tax reduces employment, increases the gross wages that companies must pay and reduces net wages to workers. The extent of each one of these effects depends on the supply and demand for labor. In the presence of a wage increase, the supply curve measures how much more people are willing to work, whereas the demand curve registers how much the companies are prepared to reduce employment.

Hence, taking an estimate of the value of social security services, V, of the total rate of contribution, T, of the elasticity of the labor supply covered by social security and the elasticity of substitution between this and other factors, it is possible to estimate the impact of changes in payroll tax on general employment, or on covered jobs in particular. For example, Garro, Meléndez and Rodríguez (2002) estimate all of these variables in the case of the Mexican labor market and conclude that a reduction in the total rate of contributions to social security, similar to that in 1997, would produce an increase of some 300,000 jobs covered by social security.

(ii) Decisions regarding when to retire and when to work

In general, social security systems induce many workers to take early retirement. The reasons for this, as explained in chapter II, are that in the majority of countries it is compulsory to retire in order to get a pension and the structure of benefits and contributions provides many economic incentives to stop working.

In almost all countries the government does not tax income from pensions. On top of this, if the pensioner receives any income from working, they usually lose their right to the pension.

In many countries there are still more incentives. For example, when a worker retires in the USA and his wife does not work, then she too receives a pension that is equivalent to a half of what her husband receives, which raises the total family income.

On the other hand, it is also true that in many social security systems on the continent, the amount of pension is related to the wages earned prior to retirement, or to years of work, which very often operate as an incentive to stay active and accumulate a better pension. For example, in 33 of the 34 countries of the continent reviewed in Table II.2, the wages the workers receive are taken into account as a reference for establishing their future pensions. And in all of the countries reviewed, individuals are required to have worked for a minimum number of years before they can claim their pension. Nevertheless, it is still very common for the schemes to include the option of early retirement, which can be more attractive to workers on high wages who can accumulate more rapidly what they consider to be a sufficient pension. This leaves the system with a disproportionate number of lower income work-

ers and therefore the total amount of contributions falls.

As seen in the review of the theories on the design of social security schemes in Chapter II, what is being sought may be precisely the retirement of older worker. That then would be the aim of the system. Nevertheless, any incentive to retire at a relatively early age creates difficulties for financing benefits.

Social security schemes can also affect the decision of whether or not to participate in the labor market, even on the part of younger workers. In fact, in many cases the structures of contributions and benefits are a disincentive for women to take jobs outside the home because it is common for benefits to be extended to the wife and other members of the family. This is true for health services in many cases, or on occasions for pensions as well, as in the USA.

In general, whenever there is a fall in the value that is placed on the service that are received in exchange for contributions, V in the discussion above, or the amount of contributions is increased, this creates a disincentive to work, at least in jobs that are covered by social security. For those workers who are on the margin of the working world, as can be seen in Figure III.4, their net wage goes down and they may consider that their time is better served outside the labor market.

III.3.2.b. Saving, the accumulation of capital and social security

Recently developed models of economic growth conclude that a higher total saving in the economy leads to a faster rate of capital accumulation and therefore to greater growth in a country's production.

Thus, determining the impact of social security schemes on national savings is of the utmost importance for understanding the consequences of alternative policies for financing the systems in relation to raising the population's standard of living.

This debate was ignited at a worldwide level by the very influential work of Feldstein (1974, and updated in 1996), in which he concluded that social security in the USA was creating a reduction in national saving, which in turn was leading to a reduction in capital accumulation and therefore lowering long-term economic growth.

The prevalent theory which serves as a reference point in the respective debates is that of life cycle saving (Modigliani, 1986), according to which when people make a decision about present consumption, they take into account expectations across their whole life, not only their income at the present time. In particular, they avoid spending all of their income during their active working life, instead saving part of it precisely in order to finance their consumption during retirement. These funds are then invested in order to earn interest, thus financing capital accumulation in the economy.

A social security system, especially a pension scheme, can then have an effect on a country's saving for the following reasons (Rosen, 1998; Thompson, 1998): (i) the effect of savings substitution; (ii) the effect of retirement; (iii) differences in rates of return on funds; and (iv) the effect of inheritances and investment on children.

As will be seen shortly, each one of these effects can act in a different way to the others, for which reason, at least in theoretical terms, the net impact of social security on a country's saving is blurred; there does, however, seem to be a consensus that the final result is negative, that is it leads to a decrease.

(i) The substitution of savings

If as part of a system of social security, people are forced to save in a public scheme, then they will probably reduce their own private saving. This would happen because they expect that what they pay in over a working lifetime would pro-

vide them with a pension during retirement. To take this argument to one extreme, if a person dedicates about 15 per cent of their monthly income to a personal savings fund and is forced then to contribute 15 per cent to a social security pension scheme, they could consider it reasonable to cease their personal saving. In this way, their total saving would not increase to 30 per cent of their income, but instead they would simply abandon the private 15 per cent savings and substitute it with the public 15 per cent.

Thus, families' private saving goes down, but what about public saving? What happens to the resources collected by the social security systems? Under a PAYG system, since a good part of the contributions are, in fact, not saved but rather paid out immediately in the form of pensions for the older adults who have already retired, the increase in public sector saving will be less than the fall in private saving.[11] In a system of individual capitalization on the other hand, the saving channeled into social security is the same as the drop in private saving.

To sum up, in a PAYG system, the effect is a decrease in the total savings in the economy in question, while in a compulsory scheme of private savings accounts there is no change.

(ii) Retirement from work and saving

If there is an increase in the time that a person spends in retirement, which may happen with increasing life expectancy, a worker has to look forward to more years of advanced age without any income from work. To cover this the individual has to increase their saving during their working life.

As the majority of social security systems encourage workers into early retirement, leading to long periods without income during their advanced years, this again requires an increase in the rate of saving.[12]

For this reason it is said that the effect here of social security is to encourage an increase in the rate of saving in an economy.

(iii) Differences in rates of return

To the majority of low-income families, social security schemes give them a higher rate of return on their contributions than they would receive on their savings from private institutions. To these families, a higher return could on the one hand encourage them to save part of their income (by paying contributions) but, on the other hand, as their wealth increases because they accumulate more resources throughout the course of their life (because of the higher return they receive) they could increase their consumption and thus lower their saving. If this second effect is greater, their rate of saving will be reduced.

The opposite could take place with high income families, for whom normally there are better possibilities of returns from private savings than those paid by social security.

Either way, there is the possibility that the total saving in the economy will be reduced depending on which effect is the most important, due to the difference between the rates of return on contributions offered by pension schemes and those paid on other private forms of saving.

(iv) The effect of inheritances and investments on children

In PAYG pension schemes (and remember that the majority of individual capitalization schemes that have been introduced on this continent are not 'pure' for the reason that they incorporate an element of PAYG

[11] In fact, in a stable pay-as-you-go system, all that is paid in is spent immediately on pensions for the retired for which reason public saving does not increase, but private saving clearly does go down.

[12] As Thompson shows (1998) in the case where a person does not find the amount of public pension sufficient or satisfactory.

in order to finance the minimum benefits that are guaranteed by the government) social security finances the benefits of the old through the contributions of the young.

This can motivate many parents to increase the inheritance that they leave to their children in order to help them avoid a reduction in their net income during the early stages of their lives in which they are financing older adults.

To be able to leave greater inheritances they have to save more, so they would be increasing the rate of national saving.

III.3.2.c Social security and problems of moral hazard

As was already been in section III.2.d, one of the reasons for social security is to force everyone to be insured, independent of the risk that each one may represent to the system. This provides a solution to the problem of adverse selection that faces all insurance schemes. This problem lies in fact that as premiums have to be based on average statistics, individuals of greater risk will find it highly beneficial to insure themselves, creating financial problems for the insurer: if people of all risks are forced to take part in the system, it is possible to spread the risks and thus save the insurance institution from bankruptcy.

Nevertheless, even when this problem is resolved, social security schemes still have to face the difficulty of the overuse of benefits by some affiliates, which is something that tends to seriously raise the costs of the operation, especially in institutions that offer health insurance.

This excessive demand for services arises because patients are usually so well insured that any additional care they receive costs them absolutely nothing: having paid the basic premium they have a right to all the benefits without any extra charge. This encourages them to use the service even to the point of extra visits that are completely unnecessary because they have already been fully attended (Cutler, 1997; Feldstein, 1971; Pauly, 1986).

In many cases there is also the problem of the incentives of those institutions that provide the health service, because there are schemes in which the government pays for the care given to the social security affiliate but does not provide it. Thus, the private institutions that provide the medical attention and receive payment from the government have an interest in the patients using their service to the very limit, so that they can charge the government more for the service given.

The excessive use of health services, which is a problem of moral hazard, imposes increased costs on social security systems and is a source of financial pressure.

III.3.2.d Social redistribution of income

For diverse reasons, PAYG pension systems tend to be redistributive. They benefit proportionally more low income workers.

Even though the level of that redistribution depends on the complexities of the structure of contributions and benefits of a particular system, it is possible to say that redistribution does take place because the benefits following retirement tend to favor those workers who had lower incomes througouth their working life, while during that active working life everyone has to pay the same rate of contribution.

For example, in some countries very high pensions are subject to certain taxes on that income, while low pensions are exempt. It is also true that women, who normally earn less than men during their working life, also tend to live longer and so receive a pension for more years. The

value of their benefit, therefore, is greater. And finally, almost everywhere the state guarantees a minimum pension, which favors low-income workers whose benefit will be higher than it would be if this guarantee did not exist.

Serrano (1999) shows that a 'pure' PAYG system, in which everything that is collected is shared equally between the retired with no reference to what each paid in during their working life is, by imposition, highly redistributive, in that everyone receives the same pension despite their income from work before they retired. Serrano reports that the systems in Argentina, Brazil, Venezuela, Colombia and Chile (before the reform in the 1980s) include important redistributive elements.

In the USA, for example, it is estimated that a person on a low income who retires in 2010 will receive US$800 more in pensions than they paid in contributions to the system, while an individual on a high income will pay $134,900 more than they will receive in pensions (Joint Committee on Taxation, 1996).

In principal, the redistributive element would disappear in a scheme based on individual accounts. However, it is possible to maintain this element through state intervention in assuring minimum pension levels.

The redistribution of income through the social security system is not limited to benefits connected to pensions. For example, Linares (2000) concludes that the health system administered by the Instituto Mexicano del Seguro Social (IMSS) is highly progressive, in that it redistributes strongly in favor of low income individuals, because it is these individuals who use the service most frequently and value the services they use more than those in the system with a higher income.

WHAT IS THE SCOPE OF THE OPTIONS TO STRENGTHEN FINANCING?

This chapter explains how the different measures put forward to improve social security finances can be analyzed from the perspective of the considerations highlighted in previous chapters, in particular those relating to their impact on the labor market, on national savings, on the limitation of moral risk problems in the systems and on social redistribution.

It also includes an in-depth study of some peculiarities that may be inherent to each one of the policies considered and it assesses accumulated theoretical and practical knowledge regarding the extent to which the proposed measures might make social security benefits viable. That is, a review of specialized literature on the impact of the options for solving financing problems.

IV.1 Changes in fees

The first action that could be taken, following the logic of the equation to determine the contribution level required for the solvency of the system is, precisely, to order an increase in the level of these contributions.[1] It would also be considered reasonable to expand the taxable base without increasing the rates of the payroll tax with which social security is financed.

IV.1.1 Increases to the contribution rate

The World Bank has recommended that developing countries reduce the contribution rate while at the same time raising the upper limit in taxable income as a way of improving financial viability, efficiency and equity in social security plans (World Bank, 1994, pp. 161). A reduction in payroll tax rates has also been suggested by the International Monetary Fund as a measure for creating more jobs (IMF, 1997), while the World Bank and the Inter-American Development Bank have proposed the same measure as a way of encouraging the informal sector to join the formal sector (World Bank, 2002; IDB, 1999). Proposals of this kind will be analyzed in this paper.

In any case, the idea would be to extend social security benefits while diminishing contributions, fully understanding that an increase in the contribution rate could help to financially strengthen the system, but at the cost of reducing coverage.

As explained in Section III.3.2.a, whether contributions to social security result in an increase in the country's labor costs, in a reduction in the general level of employment, or an increase in the percentage of the labor force covered (formal employment) depends on several factors: (i) the level of the total contribution rate; (ii) the value given to benefits received; and (iii) the sensitivity of job supply and demand with respect to salary.

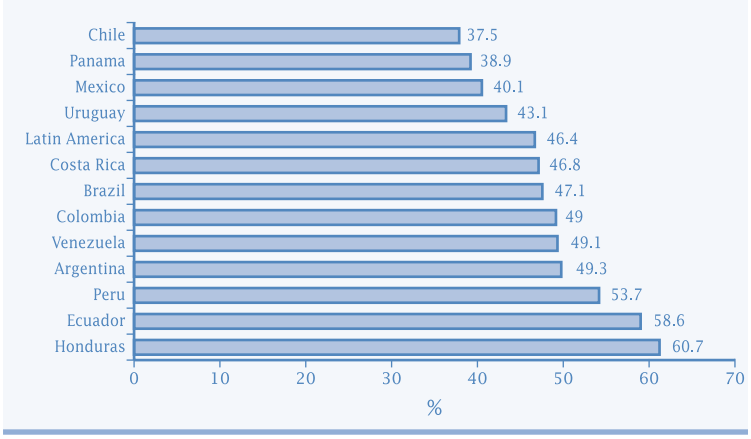
Next, this chapter will review what is known about these three subjects, hence determining the possible impact of raising or reducing the contribution rate to social security.

IV.1.1.a Social security financing and the informal sector

The existence of a high rate of informal workers represents a formidable challenge to social security systems. As can be seen in Figure IV.1, the problem of a large informal sector, that is, the existence of a sizeable group within the labor force which for different reasons has

[1] The required rate would be T= (S/L) x (P/W), where (S/L) is the senile dependency rate and (P/W) the replacement rate.

Figure IV.1 Rates of Informal Labor in Latin America (%)



Source: OIT (2000). Informal workers: independent, domestic workers and workers in small companies of six or more employees. Independent: freelance workers (except administrative, professionals and technicians) and family workers.

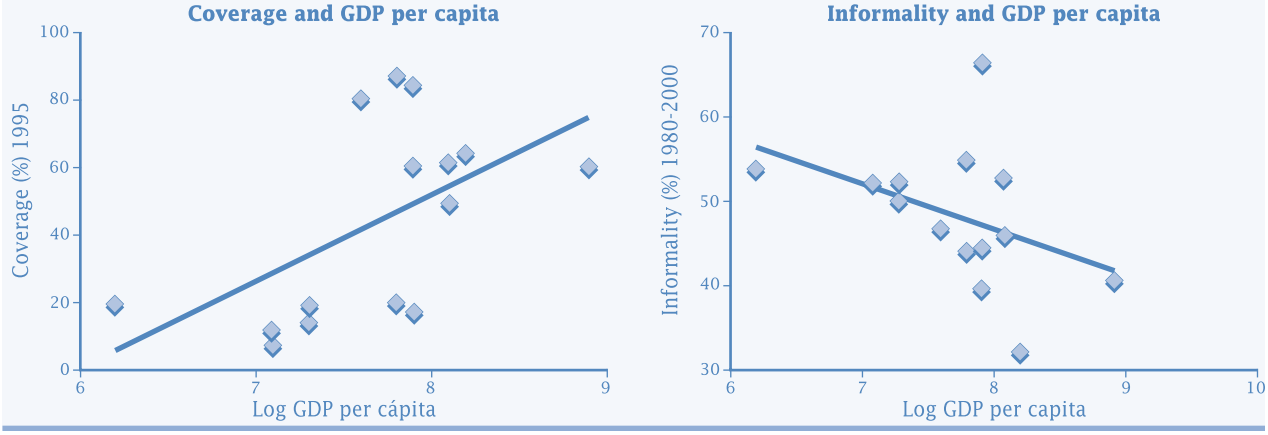
almost no access to social security, is particularly serious among Latin American countries, where it could be said that about half of the labor force finds itself in that situation.[2]

There are multiple reasons for this phenomenon; those that stand out are: (a) the ineffectiveness of labor policies, particularly those relating to social security; (b) high non-salary related costs, (c) low growth intensity in the formal sector of the labor market; (d) a reduction in public employment; (e) the widening of the terciarization process in the productive system (Bertranou, 2001).

The following figures show the two relationships that could perhaps summarize the debate regarding the informal sector and, therefore, about the rate of coverage of social security in Latin America. First, there would seem to be a negative relationship between the country's development, measured as per capita GDP, and that of the informal labor sector (Figure IV.2); and, second, as total contribution rates rise, the lack of social security coverage (or informality) also increases. (Figure IV.3).[3]

Table IV.1 shows a formal statistical analysis utilizing data from 1980 to 2000 for eight countries in Latin America. The results indicate that, in fact, higher per capita GDP results in a lower informality

Figure IV.2 Social Security Coverage or Informal Sector and GDP per Inhabitant in Latin America

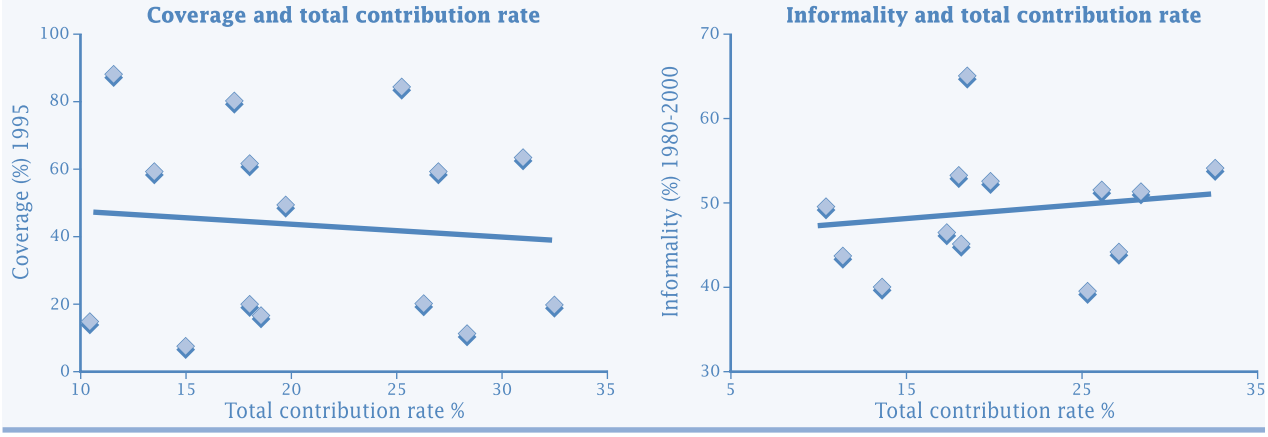


Source: Calculations using data from the International Labor Organization data (2002) and CEPAL (several years).

[2] There is a great variety of definitions for the informal sector, the most prevalent being those that comprise individuals employed in small companies with less than ten workers, where the owner is personally responsible for that company's losses and earnings, and is not incorporated into the taxable system; moreover, workers do not have a written contract (International Labor Organization, 1994). Although specialized literature establishes several alternative measurements for this phenomenon, the levels and the real trend whatever the form of measurement, is similar: the incidence of jobs with less social security, such as self-employment, occasional jobs and family jobs, started growing in Latin America and the Caribbean in the 1980s.

[3] The International Labor Organization's (1994) measurement of informality, as well as the extent of social security coverage among a country's population are related to GDP per capita and to contributions made into social security systems.

Figure IV.3 Social Security Coverage or Informality and Contribution Rates in Latin America



Source: Calculations using data from the International Labor Organization (2002) and CEPAL (several years).

rate, and that an increase in the total contribution rate to social security increases informality, confirming that the ratios drawn from the previous figures are statistically significant.

Table IV.1 also indicates that, in Latin America, the more open an economy is to international trade, the higher the labor informality it experiences. An interesting fact that can also be deduced from the statistical analysis is that informality in Mexico is on average 16 percentage points greater than in Central America, and that it is 9.5 percentage points greater in the southern region than in the Center. Finally, the 1990s was a decade with higher average informality than the 1980s.

Although it is clear that increases to contributions to social security could bring about a decline in the systems' coverage or increased informality, it must also be recognized that the sluggish growth in the creation of formal jobs in the Americas in recent years is also explained by the lack of economic growth.

IV.1.1.b Evidence of the impact of changes in the contribution rate

In a study that has been widely cited at international levels and that could be related to what is being discussed here, Nickell (1997) shows statistically that in the case of European countries, a high

Table IV.1
Determinants of Informality in Latin America 1980-2000

Variables	Regression coefficient	
Log of GDP per capita	-0.017	(0.007)
Total contribution rate	0.003	(0.000)
Trade opennes index	0.005	(0.002)
Annual GDP growth	0.004*	(0.031)
North	0.160	(0.010)
South	0.095	(0.010)
Dummy 1990-2000	0.017	(0.006)
Constant	0.400	(0.068)

$\chi^2 = 244.04$ (0.000)
$R^2 = 0.78$
N = 168 (number of observations)

Prais-Winsten regression with panel data. Standard deviation corrected for heteroscedasticity in parentheses.
8 countries, 21 years
* = not statistically significant.

payroll tax does not necessarily lead to high unemployment levels, since in the long term, the larger part of the burden is shifted onto workers. That is, the high mobility of companies and investors between countries results in employers eluding high payroll contributions by changing their location, thus avoiding the increase in the gross remuneration to be paid. In this case, workers have to accept a reduction in net salaries received, precisely the amount of taxes paid.

Although evidence for the Latin American countries is not in plentiful supply, the studies that have been carried out have reached varied conclusions. In the case of the Chilean labor market, Gruber (1997) analyzed the impact of the reduction in the social security payroll tax rate from 30 to 8.5 per cent at the beginning of the 1980s. This author found that this change had no important consequences on the efficiency of the labor markets. The reduction in costs due to payroll taxes was wholly transferred to the workers in the form of a salary rise, with little effect on the employment levels. That is, for those that were already employed, the net wage increased, so they won, but there is no evidence that more jobs were created.

As for Mexico, during the period 1991-1996, the supply of urban workers increased by 3.3 per cent annually, the formal urban job demand increased at an annual rate of 1.3 per cent, while employment in the urban informal sector grew by 4.4 per cent. According to Hernández, Garro and Llamas (2000), at most 25 per cent of the growth in the urban informal sector can be explained by the increase in the contribution rates to social security paid by employers between 1988 and 1996. Probably the main cause of this expansion was the low investment level in the formal sector, or the lack of formal job creation, which has the same cause. In fact, investment in the productive sector of the economy, measured as fixed capital per worker, has shown a decreasing tendency since the end of the 1970s.

In the United States, Gruber (1994) analyzed the incidence of maternity benefits in the labor markets; these benefits only affecting a specific group of workers, making it easier to control research measurements. The study found that the highest labor costs resulting from taxes were shifted onto workers through lower salaries, although this transference was not complete. Since that cost pressure was not completely transferred to gross remunerations, the maternity benefit policy was also reflected in more hours worked by the beneficiaries and in a reduction in total employment of the affected labor group.

In the case of Colombia, on the other hand, researchers believe that the rise in the unemployment rate in recent years could have resulted from the high labor costs charged to companies after the 1993 reform, which increased payroll taxes by 10.5 per cent. Kugler and Kugler (2002) analyzed this effect and found that a ten per cent increase in contributions leads to a four or five per cent job reduction and to a two per cent reduction in salaries. The reduction has not been greater because the fixing of minimum salaries has prevented costs from further burdening the worker through salary reductions .

In another study for Mexico, Marrufo (2001) analyzed changes made to social security regulation in 1997, concluding that there has been an effect on employment and on salary differentials between workers that are covered and those not covered by the system. The results of this study are more widely discussed in a later section dedicated to the impact of adopting individual account systems.

IV.1.1.c Assessing benefits

Workers who contribute to social security are the system's future clients, mainly as pensioners, or perhaps as through unemployment, sickness or disability. For this group, who could be called formal workers, contributions made to social

security mean paying a premium to be covered against the risk of losing their labor income or simply as a way of saving for retirement.

Thus, this is the value given to this benefit that is to be received in the future or in case of a contingency. As explained in Section III.3.2.a, this assessment is important since the higher the value assigned, the lower the reduction in employment resulting from using the payroll tax to finance social security.

Even though it is so relevant to the design of public policy, an assessment of social security services is not generally measured as a variable in available labor surveys.[4] Therefore, it has to be estimated using indirect methods.

Estimations contrast according to whether the coverage is universal or not. In the case of coverage that includes less than 100 per cent of occupied workers, an estimate of the assessment based on differentials in labor income between affiliated and non-affiliated workers is possible. The idea here is that a person would be willing to work without having access to social security as long as his/her net salary is higher. In effect, that salary premium would measure benefit assessment.[5]

Cox-Edwards and Edwards (2002) have estimated that in Chile, for equivalent jobs, workers contributing to social security receive a net salary that is nine per cent lower than the salary of workers that are not affiliated to the system. Since the contribution rate is 20 per cent of the payroll, this implies that the value given to social security is equivalent to approximately half of the contribution. Using the previously defined symbols, V=9/20, so that the net tax is equal to the ratio (11/20) of the contribution rate.

For Ecuador, McIsaac and Rama (1997) estimate that the wage differential in favor of workers not covered by social security is 18 per cent, in spite of the fact that benefits that are compulsory by law should represent 25 per cent of the base salary. That is, benefits are valued lower than they are supposedly worth.

In the case of Argentina, Mondino and Montoya (2000) estimate that workers without social security earn eight per cent more than those workers who are covered. Since the contribution rate is on average 30 per cent of the salary, the value of the benefits perceived by workers would be approximately 22 per cent of the contribution rate.

Garro, Meléndez and Rodríguez (2002), for their part, report that at the time of the reform to Mexican social security, in 1997, the assessment of benefits was equivalent to 57.5 per cent of the contribution rate since workers that had no social security earned approximately 13 per cent more that their affiliated peers,[6] when the contribution rate was slightly below 22 per cent.

When social security coverage is universal, or almost universal, it is not possible to obtain estimates of the value

[4] It would be ideal to have surveys in which people were asked how much money they would ask for in exchange for giving up their social security benefits, but even this way of attempting to measure the value of benefits to beneficiaries has its difficulties, the most important of which is that of obtaining the truth regarding that value. For example, someone in the survey may have an incentive to report a low value, even if they actually value the service highly, if they suspect that the survey could be used to demand payment for some of the benefits.

[5] The wage premium should be measured for workers with similar labor features, such as education, age, sex and occupation, among others.

[6] It should be stressed that all estimates for the valuation of social security services included here are based on the comparison of salaries between non-affiliated workers and affiliates, but equivalent in all other measures. For example, there are proportionally more professionals among those covered by the system than among those that are not covered. That is why it is common to associate higher salaries to affiliates. However, in the studies mentioned, labor income of persons with the same education level is compared, although some are covered by social security and others are not. For this reason, researches find that, comparing similar workers, those that are not covered earn more and, in fact, the wage premium is a measurement of service valuation: it is a bonus these workers require for not having access to the benefits of the system.

given to its benefits from the study of salary differentials between workers with and without coverage. In these cases, research methodology can exploit the fact that persons indirectly reveal their valuation in different ways: investing time to have access to services (queuing time and in transportation); by paying higher rents for houses in areas with higher service center density; by changing their saving patterns according to the actuarial calculations of their future pensions, and so on. Studies of this kind are non-existent in most countries in the American continent precisely because coverage is not universal.

IV.1.1.d Financing, coverage and the valuation of benefit

The problems incurred in financing social security systems through contributions by employed workers require the discussion of several features that are closely related to such financing: service, coverage and the valuation of benefits.

To begin with, at the most aggregate level, services offered by social security are typically valued at less than what is paid for them. It is also true that it is common for coverage not to be universal.

However, at a more disaggregate level, it must be recognized that when analyzing by social groups, in some of them social security coverage does get close to 100 per cent, apart from the fact that in other cases benefits may be assessed higher than the group's contribution. In fact, the redistributive character of the systems implies that some persons, those with lower incomes, must receive more than they contribute.

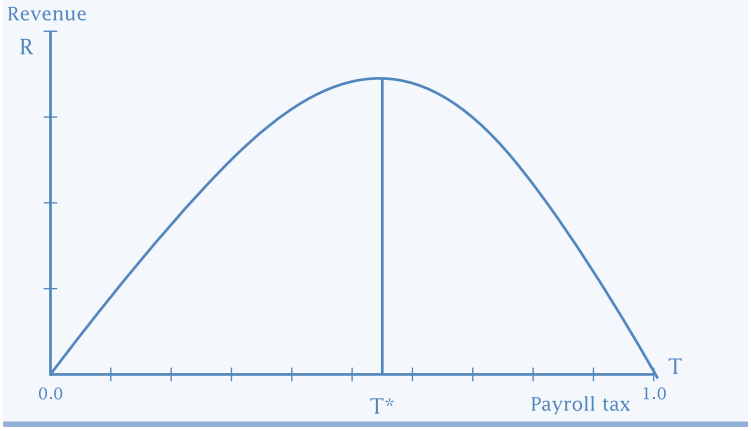
This opens several possibilities for financing strategies. In order to understand this consider four possible scenarios: (1) coverage at less than 100 per cent and valuation of services lower than the contribution rate; (2) coverage under 100 per cent and valuation equal to or higher than the contribution; (3) universal coverage and valuation of services lower than the contribution rate; (4) universal coverage and valuation equal to or higher than the contribution. As explained, at the most aggregate level possible, scenarios (2) and (4) are not possible, while (3) is not common on the American continent. However, it is possible that some social groups may find themselves in any of these possible scenarios; in this case, the following strategies could be considered in order to obtain more revenue for the system.

(1) Coverage under100 per cent and a valuation of services lower than the contribution rate. Undoubtedly, this is the most complicated situation when attempting to remedy financing problems in the social security system through an increase in the payroll tax.[7] In fact, should such an increase to the contribution rate be implemented, it is possible that social security coverage would be discouraged, or it may even diminish with or without a future improvement in the quality of services. Once again, a change in coverage with tax modifications will depend on the response of the demand and supply of covered workers, but in general it could be said that raising contribution rates in this situation is not recommended, unless there is some guarantee that measures to raise the perceived value of services will be simultaneously introduced. Besides, as explained earlier in this chapter, the possible effect on the collection of revenue must also be taken into account.

(2) Coverage under 100 per cent and valuation equal to or higher than the contribution. The scenario of an assessment of value that is higher than the contribution rate could be found in certain specific affiliate groups. Here, a staggered rate could be implemented in such a way that the contribution rate could be raised up to the point where it is equal to the valuation for those groups that value benefits more. If there were coverage below 100

[7] It should be reiterated that the difference between contribution rate and valuation acts as an effective tax on labor.

Figure IV.4 Hypothetical Laffer Curve



per cent even with a high valuation (this would be due to other effects that must be analyzed), there exists the possibility that contributions might be evaded. This will be analyzed in more detail in Sub-section IV.1.3a.

(3) Universal coverage and a valuation of services lower than the contribution rate. It is possible that, although complying with quantity or coverage, these systems are not offering the minimum quality requirements expected by affiliates. An increase in taxes would further widen the gap between valuation and contribution, so it would be better for institutions to make an effort to improve their efficiency, offering better services at the same or lower costs.

(4) Universal coverage and a valuation equal to or higher than the contribution. It is possible to solve financing problems in social security costs through an increase in contributions or in the indirect tax rate, up to the point where the rates equal the value given to benefits.

In sum, the assessment of social security benefits made by citizens of each country, and in particular by affiliated workers, plays a significant role in the design of policies considering financing from the labor market. It is especially difficult to imagine a policy of higher contributions without the corresponding improvement in benefits offered.

IV.1.2 Contribution rates and collection amounts

It would seem that reducing contribution rates could result in an increase in social security coverage, but at the same time in a reduction in total collection in the system; an increase to the contribution rate would result in the opposite. However, in the Public Finance Theory it has been recognized that, on occasions, total collection could be increased by reducing the rate of a certain tax, that is, fiscal authority income could fall should they try to raise contribution levels.

The reason for this may be, for example, that a higher contribution rate would imply a higher collection from workers who remained affiliated to the social security system, but some others could also end their participation and thus their contribution would be zero: the result in terms of the amount collected would depend on which effect dominates.

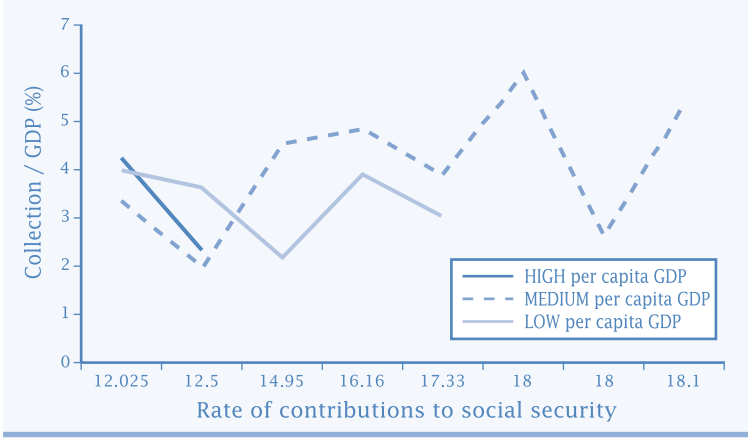
The factors discussed above contribute to the so-called 'Laffer effect' (Varian, 1993). The Laffer curve makes it possible to find the tax rate level that maximizes total collection resulting from that tax. According to this hypothesis, the total amount collected, R, is a function of the contribution rate, T, as shown in Figure IV.4.

If the system were to try to fix the rate T over T*, the contribution percentage which maximizes collection, less revenue from contributions would be received. The value of T* depends on the form taken by the supply and demand of labor curves.[8]

The question would then be, at which point are countries in the continent located? Is it possible that they could obtain more revenue for social security by increasing the contribution rate?

[8] For the reader interested in technical details, the rate which maximizes collection, T*, would be equal to (1+Es-Ed)(1+Ed), where Es would be the elasticity of the supply curve and Ed the elasticity of demand. If T is higher than this value, then increasing it would reduce collection.

Figure IV.5 Collection and Tax Rate (Average 1975-1989)



Source: Calculation using data from CEPAL (1978, 1986 and 1992), Statistical Yearbook for Latin America and the Caribbean; CISS (1994), Social Security in America 1994, Secretariat General; and OIT (1996) The Cost of Social Security.
Classification was made based on per capita Gross Domestic Product. United States = 100.
High: United States and Canada.
Middle: Panama, Jamaica, Chile, Costa Rica, Brazil, Uruguay, Mexico and Argentina.
Low: Bolivia, El Salvador, Guatemala, Colombia, Nicaragua and Ecuador.

The answer is complex, but some general indications can be identified. For example, in the case of Mexico there are estimates available on the elasticity of demand and supply for jobs covered by social security (Marrufo, 2001), which suggest that the system is almost balanced:[9] if the rate of contributions to social security were increased, the income of the Mexican social security system would decrease while at the same time coverage would be reduced, that is, there would be a loss on both sides.

The Laffer argument has been criticized in that the postulated relationship is not present in many cases; also, the objective of maximizing collection may not be the most important one for a public institution.

Figure IV.5 attempts to identify pattern between the contribution rate to social security and collection (expressed as a percentage of GDP) for the American continent.

A relationship can be noted in countries in the middle range of per capita income, among which it seems that maximum collection is reached with a total payroll contribution rate of approximately 18 per cent.

Thus, although it is not clear that the so-called Laffer effect will evident in such a way that the relationship could serve as a guide to general policies, it is advisable for each country to follow the logic of the argument to try to estimate what would be the effect on collection in its social security system if the contribution rate were increased. Before making any changes, the policy-maker should be sure that this would not result in the worst scenario; that is, a reduction in system coverage plus a drop in collection.

IV.1.3 Expanding the taxable base

An expansion of the taxable base can include two dimensions. The first dimension would be reducing evasion in social security contributions. That is, social security institutions could try to improve supervision of companies and workers eluding their duties, although they might also improve services in order to attract more contributors. The second dimension would be an extension of coverage - through specially designed systems - to those sectors that have traditionally been left out of social security systems.

IV.1.3.a Reducing contribution evasion [10]

In most social security systems, employers are legally required to make contributions in favor of their workers, as

[9] According to Marrufo (2001), in Mexico, the elasticity of demand for jobs covered by social security is approximately 1.36 and that of supply is 0.88. Therefore, applying the formula in the previous footnote implies that Mexico should not increase its contribution rate at more than 22 per cent of the payroll: it would not be effective to set a higher tax since collection would start to drop. It is true that not every contribution that is made to the different types of insurance in Mexican social security is set as a percentage, but taking into account the wage of the representative worker, Marrufo concludes that the rate, T, would be equivalent to 21 per cent. The similarity between this value and the one that would maximize collection implies that the system would be balanced with respect to social security income from contributions and therefore setting a different rate would result in a drop in collection.

[10] This sub-section is based on the work of Bailey and Turner (2001).

well as to collect them even when they are not taxed. Therefore, opportunities for evasion on part of the workers are limited to collusion with employers. Such collusion serves the interests of both parties by reducing their immediate expenses. Therefore, when evasion occurs and employees become aware of this fact, they should report it to the responsible office. Cases in which there is no collusion occur mainly in the case of self employed workers, employers with no resources to make the required contributions and employees who are not aware that evasion is taking place. The latter may find out only when the worker should require the social security benefits from his employer.

Some of the possible strategies that have been suggested, most of which are analyzed in this chapter, are:

- Changes in the structure of social security:
  - Eliminating the obstacle that high contribution rates could represent for low income workers who have little disposition to pay by reducing payroll taxes
  - Linking benefits and contributions to social security, since in the short-term workers demand more healthcare than pensions due to the immediate need for such care.
  - Establishing government subsidies designed to increase the income of workers on low pay and their participation in the system.
  - Designing programs allowing for the reduction of minimum benefit guarantees and poverty benefits in order to increase participation of low-income workers in social security contributions.
  - Establishing mechanisms to extend coverage through voluntary affiliation of those groups in which evasion is high; for example, workers in the informal sector whose income is very low and variable.
- Changes in attitudes to the system:
  - Willingness to pay could be improved through public relations and educational campaigns highlighting the benefits of contributing to the system and the penalties for not doing so. An effective strategy for social security institutions is to seek the support of labor organizations so that they can encourage workers to make their contributions.
- Administrative changes:
  - Establishing mechanisms to identify those workers and employers evading contributions in order to improve administrative efficiency and generate the increase in confidence that is necessary for them to contribute to social security.
  - Improving methods for the collection of contributions. That is, combining the collection of social security contributions with the collection of other taxes with the objective of increasing efficiency in the use of resources. Likewise, creating agencies responsible for collecting contributions and for increasing willingness to make the payments by improving efficiency through the specialization of administrative functions.
  - Acting quickly when imposing payments, which will increase the effectiveness of programs for contribution collection, carrying out audits on companies and cross-referencing information with other government organizations.
  - Simplification of laws regarding social security so they can be easily understood by workers and employers.

- Creating an agency to supervise the honesty of inspectors, who could also be better remunerated to avoid a high incidence of cases of corruption.

- Changes in the macroeconomic environment:
  - High inflation rates, high unemployment rates and the financial exhaustion of employers as well as of the public sector can result in contribution evasion. A temporary reduction in contribution rates and benefits could be used as an emergency measure to preserve social security systems operating at low levels.

One might think that the above would result in financial relief for social security institutions. However, when coverage is as low as in most parts of the American continent, the core problem cannot be solved with measures of this sort. Ultimately, if somebody does not wish to contribute to a system, it is very likely that it is because they do not consider that what they will receive is worth what they will pay.

IV.1.3.b Extending services to sectors that traditionally have not been covered

Hence, the problem of expanding the taxable base has a dimension in which, to be able to attract more affiliates it is necessary to review the way in which the benefits required can be provided by social security to the different sectors not covered by social security.

Therefore, there should be an evaluation of programs to be implemented as well as an examination of different sources to finance them. The subject of using revenue from other taxes in the economy to be able to expand social security coverage is examined later, while this section considers some services that could be offered through the social security system.

Since the population that is not protected by the system tends to be the one at a greater economic disadvantage, there is growing concern on the part of governments to create alternative social security systems for workers not covered by the traditional system. These should provide protection against the worker's own risks as well as those of his family without encouraging participation in the informal sector. In particular, the idea has been raised of separating affiliation to social security from participation in the formal labor market (Levy, 2002).

One must then be careful to evaluate the needs of informal workers when attempting to include them in a social security system. For example, some self-employed workers would perhaps prefer to invest in their own business as a way of future social protection. In that case, they would perhaps demand loans rather than pensions.

It would seem that saving for retirement is not a priority for most informal workers since it is seen as distant concern, or also, as for other eventualities such as sickness, they may rely on the support in retirement of close relatives, such as their children. It is worth mentioning that in some studies it has been concluded that some informal workers save in the form of real estate acquisitions and monetary savings (van Ginneken, 1999).

Systems that have been specially designed for other sub-groups of informal workers have also been studied and proposed. These are generally limited to smaller populations so their administration is usually costly and are associated with other institutions such as non- government organizations, unions or insurance companies. In a regional system, one must try to avoid social security systems based on occupation or economic sector, seeking those with wide geographic coverage, since in this way costs can be reduced through local participation and control. Some of the challenges in this type of option are how to offer social

security packages that are able to satisfy the priorities of the workers; dependence on extra-regional funds for long-term financial viability; the possibility of combining collection from different systems; and the possible link to insurance companies or other social security agencies (van Ginneken, 1999b).

The compulsory nature of social security in the formal sector of the labor market offers the best guarantee that workers with lower risks will support those with greater risks. However, it is not feasible to expect informal workers to join these systems. That is why specially designed schemes are being proposed, although some groups could be linked to social security systems for formal workers by means of special windows. These possibilities exist because an important condition for the success of a system is the possibility of traffic between different parties, particularly between social welfare and social security.

IV.2 Limitation of benefits or services

If it is politically difficult to order increases in contribution rates to social security, or if this option is not feasible due to the negative impact that could be generated in the labor market, then an alternative that may be considered is to impose limitations to the services offered.

For example, the contribution rate required to support a pay-as-you-go-system was calculated as T=(S/L) x (P/W), where the replacement rate, (P/W), expresses the value of the pension to which an individual is entitled as a percentage of their salary. In this case, P/W measures the benefits of the system to the affiliate. If the replacement rate is reduced by setting a lower pension, then the system's financial burden is relieved, so it might even be possible to reduce T.

Benefits can be reduced in several ways; some of the possibilities that have been proposed are: (a) by increasing the minimum age for retirement and/or reducing the benefits for early retirement; (b) by demanding extra payments for some services; or (c) by deciding on what base, salaries or inflation, to index benefits. These measures, along with others, effectively reduce the present value of benefits, thereby lowering valuations of social security on the part of workers.

The risk would then be, as explained in the previous section, that this may lead to an increase in the percentage of workers who would prefer a job that did not contribute to the system, that is, a job in the informal sector. Limiting the benefits of social security in this manner can help relieve the systems' financial burden. The different proposals are analyzed below.

IV.2.1 Increasing the minimum retirement age and/or reducing benefits for early retirement

Even though some authors have stated that social security exists as a compensation to older workers so they can retire voluntarily and be substituted by others with higher labor productivity (Sala-i-Martin, 1996), it is also true that the productivity of older workers has tended to improve as the result of medical advances and the extension in life expectancy, so it would be reasonable to increase the minimum retirement age in return for access to a pension as well as to other services. Some studies (Dwyer and Mitchell, 1999; Manton *et al,* 1997; Crimmins *et al,* 1997; Burkhauser *et al,* 1996; and Smith, 1999) have shown that, compared to previous generations, older workers are now in better health and disability rates over 60 years of age have dropped.

By increasing the age of retirement, when workers are entitled to receive the pertinent benefits, the financial situation of the system could be improved since those who contribute would remain longer in the labor market, continuing to contribute through their fees, while at the same time the period in which they would have to be sustained as pensioners would be reduced.

In addition, if the economy were to generate the required jobs, there could be higher product growth since more individuals would extend their working life. One negative effect could be a higher incidence of cases of disability or sickness, although it has been estimated that the benefits of such a policy would outstrip such costs (U.S. General Accounting Office, 1999).

When considering this alternative policy, it must be noted that the tendency towards a reduction in the participation rates of older workers in the labor market is generalized in America as well as in other countries in the world.

For example, in the United States, between 1959 and 1985, the labor participation rate of men aged 65 or older fell from 45 to 16 per cent, and by the year 2000, it stood at just ten per cent. In Canada, this participation rate was six per cent in 2000; in South America, the rate decreased, between 1980 and 2000, from 22 to 17 per cent.[11] In some countries in Central America, the reduction has been from 29 to 25 per cent; in Mexico, from 39 to 32 per cent (International Labor Organization, 2000).

As can be seen, these rates are usually higher in Latin America, perhaps due not only to inherent deficiencies in their social security systems but also to the low income levels and to the informality in jobs, among other relevant factors.

Other situations should also be considered. For example, increasing the minimum retirement age would increase the number of workers in the labor market, but those who are older would encounter some obstacles in finding a job due to a preference for younger workers.[12] On the other hand, they would also have to face the idea that they have lower productivity; this would not only be a potential obstacle to them holding onto their jobs but also in finding a new one should they be laid off, or to entering the labor market once again if they had already retired. Besides, careful consideration should be given to whether the working conditions really exist for older workers, as in the case of blue-collar jobs, which may involve considerable physical effort.

Regardless of the practical difficulties in attempting such a measure, to what extent it would bring financial relief?

In the case of the United States, there is certain evidence indicating that increasing the minimum age of retirement would not lead to an improvement in the financial situation of social security systems (Kotlikoff, Smetters and Walliser, 2001). Even though supply and labor income increase, a reduction in the number of years in retirement makes it unnecessary to save as much as before. This, in turn, leads to a shortening of the cycle of accruing wealth. Consequently, there is a reduction in the amount of capital per worker that leads to a reduction in real salaries. Hence, the taxable base of social security changes according to the net result of two opposing effects. On one hand, it expands since there are more workers contributing to the system; but on the other hand, it is reduced due to the effect of the decrease in real salaries. Therefore, the net impact of increasing the minimum age for retirement on the total contribution collection figure becomes negligible.[13]

An alternative that is closely related to the idea of increasing the minimum age for retirement is a reduction in benefits received by those who take early retirement. In general, social security programs offer early retirement benefits that can be quite generous; these may actually imply

[11] Bolivia is an exception to the rule.

[12] Among other obstacles one might mention: (1) insurance for younger workers is less costly; (2) the short period that older workers could actually be in the market; (3) the costs implied in hiring and training a worker are more easily recovered with the young (Hutchens, 1988).

[13] An effect of this kind has not been studied in the case of a small open economy in which the level of capital per worker in the long term is not only determined by domestic savings but also by the inflows and outflows of foreign investment. This possibility could be more relevant in evaluating the effect of increasing the minimum age for retirement in most Latin American and Caribbean countries.

a penalty for having labor income after the minimum age established for retirement. For example, in Mexico the worker can retire if the pension s/he is to obtain from the savings accrued in her/her individual account is 30 per cent higher than the minimum wage.

Hence, one point worth noting is that decisions regarding retirement are made based on forecasts regarding the future flow of pensions. According to Stock and Wise (1990), individuals compare the personal benefit they would obtain by retiring today against the those that will be received on retiring at a date they consider the best from the point of view of their complete life cycle. The difference between the value of the two benefits is called the 'option value'. According to Samwick's (1998) statistical studies, this option value, rather than the pension level or the accrued savings of the individual is the main determinant in the decision to retire from the labor market. Chan and Stevens (2001), on the other hand, find evidence to the contrary, in the sense that the amount of the pension does have an important influence on the decision to retire at an early age.

Gruber and Wise (1997) conclude that social security programs in industrialized countries have actually contributed to a reduction in the participation rate of older workers, reducing the productive potential of the labor force; in order to turn this trend around, retirement benefits would have to be modified, especially those regarding early retirement.

In Canada, Gruber (1996) found, on the other hand, that a 32 per cent increase in social security benefits reduced the rate of participation of older groups in the labor market by just three percentage points.

Mitchell and Phillips (2000) found that in the United States significant benefit reductions for early retirement, even if they were eliminated, had very little effect on the decision to retire.

Therefore, the conclusion is that in spite of the fact that a significant part of the phenomenon of early retirement in the modern world is attributed to social security benefits, there seems to be some skepticism regarding the extent to which measures such as those described in this section relieve the financial burden of the systems.

IV.2.2 Extra payments or co-payments in some health services

As explained in section VIII.2.c, social security systems are faced with the structural difficulty of excessive use of benefits by affiliates, which stems from the fact that, once they have contributed their base premium, they have a right to all benefits free of charge. This tends to increase operating costs significantly, particularly in those institutions offering health insurance.

This moral hazard dilemma suggests that, fundamentally, the insured individual or institution can take action with the sole intention of collecting the insurance benefit (Stiglitz, 1986). To solve this problem, the idea of co-payment has been proposed. This is an agreement made in advance to share payment for a service, that is, it is stipulated that when the insured incurs expenses for medical services, the insurer pays for part of the cost of the service and the insured pays the remainder.

In an experiment carried out in the USA, known as the RAND Health Insurance Experiment, it was found that the higher the co-insurance, the fewer the visits to the doctor and hospital admissions; however, the expense per visit does not change. With regard to the effects on the subject's health, they found that among the poorest adults (those located in the first income quintile) who had blood pressure problems at the beginning of the experiment, improvement (lower blood pressure) was greater among those who did not pay co-insurance than among

those who did (Manning et al, 1987). This indicates that limiting costs could actually result in a lower quality service.

In the specific case of health insurance, moral hazard acquires certain peculiarities that could result in an increase in the cost of service. Indeed, medical insurance does not only affect the quality and quantity of medical welfare once the ailment appears, but it can also affect actions that are carried out to maintain health: in short, it can diminish the incentive for self-care or preventive measures on the part of the insured.

That is why private insurance plans generally do not cover 100 per cent of the cost of the service since the economic incentives to achieve efficiency in providing insurance would disappear and the moral hazard would be very high. Therefore, efficiency requires that there is not complete risk coverage, and smaller risks and predictable costs are not included. This is why in the private markets insurers offers limited coverage through co-payment or deductible systems, in which the policyholder must pay for a significant part of the cost.

This concept can also be applied to health services encharged to the State. The goal of such policies would be to reduce the moral risk introduced by users of public services and, above all, to limit the high cost of the health sector. However, the amount of the co-payment should be assessed since its introduction reduces the benefits received by those insured and introduces a higher financial risk. If the introduction of a distributive component to the co-payments was required, this could be related to the income level of the affiliate.

However, it is not clear when the objective of the co-payment would be attained. For example, if health expenditure does not depend so much on the patient but on the doctors' charges, then even if the percentage applied to the co-payment were high, it would not eliminate the problem of high costs. This leads to the discussion regarding hospital organization and medical regulation, which will be discussed later.

IV.2.3 Indexation of pensions to inflation or wages

One way of providing protection for pensioners against the erosion of income produced by inflation, which reduces the purchasing power of their pensions in real terms, is to index them to prices, although they could also be indexed to wages.[14]

Depending on the country's macroeconomic environment, to finance social security, at times it may be more appropriate to update the value of pensions in line with the price index, and at others it will be preferable to consider salaries. For example, high inflation can exacerbate the system's financial difficulties if pensions are indexed to growth in the level of prices.

Indexation to price increases can be controversial for several reasons (Lefort and Schmidt-Hebbel, 2002); the main one is that it can increase inflationary inertia, thus perpetuating inflation and making stabilization of an economy in times of financial turbulence less likely.

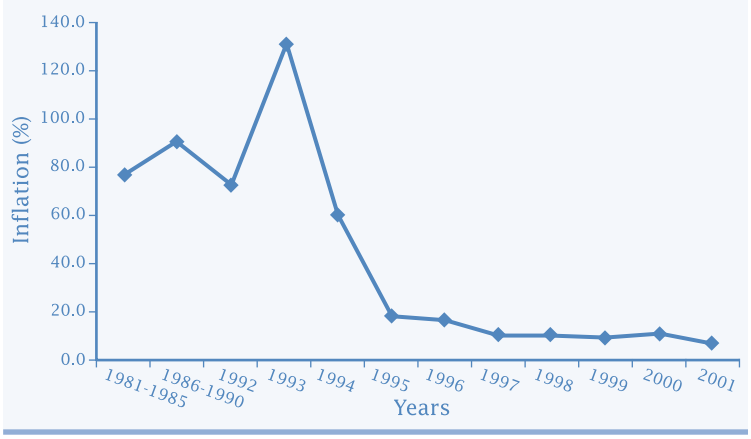
As it can be seen in Figure IV.6, inflation has tended to stabilize in the Latin America and the Caribbean region.

Figure III.3 has already charted the evolution of real wages, which have started to grow slowly in Latin America and the Caribbean since the mid-1990s.

This means that in recent years wages have grown at a little over the rate of inflation. Therefore, at first glance it would seem that it would be easier to finance

[14] The reason for utilizing the inflation index is that the elderly are less capable of adapting to a drop in real income than the young and they are less concerned with the increase in real salaries since their spending levels are perfectly set. The logic behind utilizing the wage index is that young families should not be expected to bear all of the burden of a drop in real per capita income and that the elderly should share in adversity, in favor of economic growth. (World Bank, 1994).

Figure IV.6 Inflation in Latin American and Caribbean Countries, 1981-2001. Annual Average



Source: CEPAL (2002).

pensions if they were to be indexed to inflation. In this case, contributions from active workers would grow more rapidly – because they are based on wages – than benefits to be paid, since pensions are being updated based on price increases.

However, should there be a reduction in the stability of the macroeconomic environment, whereby salaries normally grow more than prices, having indexed pensions to inflation could have a detrimental effect on the financial soundness of the social security system. So the decision on how to update the amount of pensions should be taken following careful consideration of the macroeconomic projections.

From a political point of view, the decision regarding which method is better also depends on how workers assess their position relative t to other population groups, or in absolute terms, that is in determining the needs to be covered by their pensions. Also, whether they are willing to pay a higher contribution rate today in exchange for the possibility of a greater spending capacity in the future (World Bank, 1994).

IV.3 Policies that enhance the assessment of a service

If those who contribute to a social security system consider their contributions to be a payment for a service rather than a tax, insured employment is not reduced, tax collection is less difficult and thus, coverage – as well as financing – is easier.

Then, even without increasing the amount of the contribution, some of the problems discussed here can be solved through policies that increase the value workers ascribe to social security benefits. Among other measures, the following have been proposed: (a) linking contributions made to pension funds to benefits for the worker; or (b) carrying out administrative improvements, particularly in the health sector, and/or reorganize services.

IV.3.1 A better link between contributions and benefits

One problem that is particularly notable regarding pensions under the pay-as-you-go- systems is that on many occasions the worker does not feel he is saving for his retirement since it is not clear how much he will receive, once he has retired, in exchange for the contributions he made while he was active. This can reduce the assessment of his social security for retirement.

Therefore, one recommendation has been to reform the structure of the pension systems in order to form a close link between contributions made and the amount received. This is supposedly one of the virtues of the individual account system since the worker can see how his contributions are gradually accruing in a savings account in his name.

Hence, since this measure is normally discussed when assessing reforms directed towards individual capitalization systems, it will be taken up in section IV.5. For the time being, suffice to say that evidence has been found regarding the validity of the argument: some research concludes that the adoption of the individual account system has resulted in increased benefit assessment by workers and therefore, in an expansion in system coverage,

while other studies have found no evidence to this effect.

IV.3.2 Administrative improvements and reorganization in the health sector

There is a clear counterbalance between cost reduction in the health sector and the quality and coverage of services offered. At the same time, it should be noted that quality has an influence on the valuation of services by those who contribute to social security: this is a key element in the viability of a co-insurance system or in an increase in the contribution rate.

Administrative improvements and the reorganization of services can reduce social security costs. In the United States there has been some research on this matter (Stiglitz, 1986). For example, a system in which hospitals receive a fixed predetermined amount based mainly on the patient's diagnosis, regardless of the real cost incurred, was introduced in 1983. In this manner, hospitals have to work to a stricter budget than in the previous system, in which the figure assigned was based on the costs incurred. Those who defend this system declare it to achieve higher welfare per dollar, while those who oppose it claim that the quality of services is negatively affected. The former point out the need for supervision and diagnosis follow-up as important requirements to ensure quality; the latter point out that including a patient's symptoms in a previous diagnosis catalogue can result in lack of precision and trustworthiness. In summary, it is not clear that what is gained by reducing costs can compensate what may be lost in service quality.

One stream claim that the public health sector should be oriented towards preventive services, towards offering the means to improve health in society rather than to treating sickness. To this effect the Health Maintenance Organizations (HMO) have recently appeared in the United States. They provide general health services in exchange for a fixed fee and the doctors are paid a salary. These private organizations have developed rapidly over the last few years and the federal government has reached agreements to offer public health services through them. It seems that the expected impact on the cost per person attended has been achieved. One drawback of this kind of organization is the lack of the patient-doctor relationship that could negatively affect the quality of the assessment.

In general, that country considers that the most adequate vision is to increase the individual's possibility to choose among different alternatives for insurance policies, particularly those which impose limits on the care offered, but increase financial returns to encourage users to choose less expensive health insurance (Cutler, 1997).

Thus, an increase in choice raises the valuation of social security services, but inducing lower expenditure on health could diminish it. There are savings then in the system's operating costs but since these may lead to a reduction of the affiliate's valuation of the benefits, not every financing difficulty is eliminated.

In Latin American countries, on the other hand, it is common for the bulk of medical care to be financed and supplied by the public sector. Within these systems, the possibility of affiliates choosing the healthcare they receive is generally absent.

A reform to the health sector allowing contributors to choose their insurance company, and with it, different health service suppliers, was carried out in several countries, particularly in Colombia. In addition, the Colombian reform made an attempt to replace subsidies granted by the government for the supply of health services (to hospitals and health centers) with subsidies for lower income individuals. The Colombian reform represents an attempt at the administrative reorganization of the system, where part of the

strategy is to pay public hospitals according to services rendered instead of assigning them a budget based on historical considerations, thereby endeavoring to favor the efficiency of the system.

Measures allowing the affiliate to choose, for example, the doctor who is to attend them are being proposed in places where the traditional systems prevail. Measures such as this would not only increase the valuation of the service on the part of the contributors but they could also limit costs, since once the relationship between doctor and patient is strengthened, the doctor will have more knowledge regarding the patient's health.

An interesting case to be considered is Canada, since it has universal health insurance which is exclusively provided by the government in each province and financed through value added taxes and income taxes. In order to limit costs, hospitals are paid through negotiated budgets and doctors are paid through fees negotiated between the government and medical associations (Phelps, 1997).

The lack of universal health coverage in a country results in the absence of assistance, or free assistance in some cases. The latter could be provided if it were possible to charge insured individuals more in order to cover the costs of those individuals that are not insured; that is, by strengthening the joint liability part of the systems. This possibility is linked to the discussion of a national medical insurance system. Among the various challenges facing such a system is the definition of medical expenses that are considered 'catastrophic', because they are so high that they force individuals to significantly reduce their living standard. However, when you link the catastrophic concept to the income of the individuals or families involved, the problem of poverty blends with that of insurance coverage.

In the meantime, providing guaranteed assistance to people below the poverty line is still viewed in most countries in America as a social welfare problem rather than a problem of extending health insurance coverage.

IV.4 Assigning more public resources, from different sources, to social security

Financing the expansion of social security coverage requires more resources. It would seem, from what has been discussed in previous sections, that introducing increases in payroll contributions is not the best option to obtain them. So there remains the question of how or where to find these additional resources for social security.

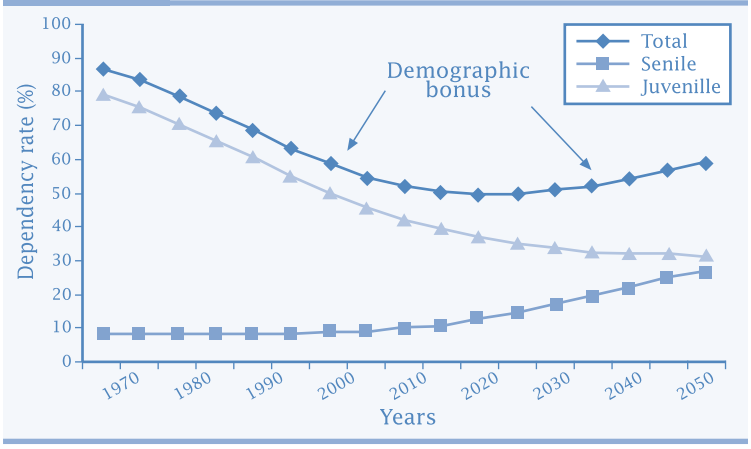
In this sense, one possibility for freeing funds from other sections of the public budgets is associated with the so-called demographic 'bonus'. The other option, of course, is to look for resources by means of more general taxes, such as national taxes on consumption or on income.

IV.4.1 The demographic bonus and social security financing

A demographic bonus is the period in which the number of individuals in a relatively more productive age (from 15 to 64 years of age) is considerably higher that than the number of those that are economically dependent (under 15 and over 64) and the number of dependents per individual in productive age continually diminishes. That is, the period immediately before the total dependency rate reaches its minimum, as discussed in Section VII.1.

Once this minimum is reached, the ratio will tend to increase due to the aging of the older population. Figure IV.7 shows the forecast trajectory of dependency rates, which have been previously defined, in Latin America. As can be noted, the demographic bonus will not be experienced until approximately the year 2025. After that, the total dependency ratio will start to grow.

Figure IV.7 Demographic Bonus in Latin America



Source: Calculations using data from CEPAL (1998).

Faced with this process of demographic change, there are those who have suggested that it will be possible to free public resources previously channeled into care for a young population as they reach adulthood. These resources could now be allocated to improve coverage and quality in the services offered by social security, mainly to a population of older adults, as well as to generate a virtuous circle of higher savings, investment and employment, with significant increases in investments in human and physical capital: there are more older citizens to care for but there are also less children.

One of the keys to reinforcing the opportunity of the demographic bonus is the total utilization of the productive potential of the working age population. Indeed, the optimum ratio of population between 15 and 64 years of age will be reached in the year 2025. This represents a significant admission of workers into the labor market. According to recent birth rate trends, they will have small families; they will also contribute in expanding the fiscal base.

However, this admission of new workers to the labor market could affect the level of their wages, which, should a specific policy not be implemented, would remain at the same stagnation levels that have been identified in previous sections. The generation of formal jobs that allow for the incorporation of these workers into social security systems has also to be considered. That is, if the creation of jobs does not happen at the required pace and if there is no improvement in real wages, it will not be possible to take advantage of the demographic bonus.

The second key to being able to take advantage of this development in population is for what is saved on one side, due to the reduction in the number of children, to be sufficient to pay for the additional expenditure on the elderly. For example, one might ask what is the structure, by age, of the cost of taking care of the population's health and education? Which are easier to care for, the needs of the children and the young or those of the adults and the elderly?

For example, Table IV.2 shows the expenditure per person at each education level in Mexico, as well as health expenditure by age group, assuming the pattern would be similar in other countries in the continent.

The process of demographic change produces a gradual reduction in the percentage of the population aged from zero to 12 years, as well as in those in the primary and lower secondary education levels. On the other hand, the ratio of people in upper secondary and tertiary levels will increase, as will the relative number of persons aged 13 to 64.

As can be seen in Table IV.2, there will be a reduction in health costs with the demographic change because the expenses per person aged between six and 18 are lower. Subsequently, these costs tend to climb once again; at the time of the demographic bonus because children are decreasing but young people are increasing, there should be savings on the side of health expenditure. Nevertheless, once the percentage of young adults starts increasing, it will no longer be possible to take advantage of this bonus because the

Table IV.2
Average Cost per Person in Health and Education, Mexico 1996
(Ratios are worth one for the lowest figure)

Ages in years	0-5	6-12	13-18	19-35	36-50	51-64	65 y más
Health	1	0.5	0.5	1.01	1.26	1.82	2.89
Education Level	Primary	Lower secondary	Upper secondary	Tertiary			
Education	1	1.76	4.69	10.5			

Sources: López-Acevedo and Salinas (2001) and INEGI (2000).

cost for caring for that segment of the population is not lower than the cost of caring for children. Besides, it should also be noted that the cost for providing care for individuals over 65 increases strongly. In this sense, the opportunity offered by demographic trends may end long before the year 2025.

As for public expenditure in education, the reduction in the percentage of children in the population implies there will be less expenditure on primary education. However, as shown in the table, the cost per student in higher education levels is greater, so unless attendance levels at upper secondary and tertiary levels are extremely low and remain so, there will be no possibility to free additional resources for social security.

To summarize, because of the simple reassignment of public budgets that were previously assigned to care for children towards programs with incidence in the older adult population, it is not clear that a demographic bonus really exists. In any case, the opportunity may arise, but for a period that is much shorter that the one shown in Figure IV.7.

IV.4.2 Use of fiscal revenues from other sources

For most of the nations in the continent the last two decades have been times of constant fiscal adjustments in order to stabilize economies. For this reason, in many cases public budgets have been reduced to a minimum so there is little margin to reassign resources from other uses to social security.

The financial strengthening of social security programs through the utilization of revenues from different general taxes would then be practically impossible unless fiscal collection due to taxes on income, taxes on consumption, taxes on capital, or other taxes were increased.

It is for this reason that discussion about obtaining more resources from general sources to finance social security generally leads to a debate on the broadest subject in fiscal reforms: Which taxes will be most effective to increase the country's overall tax revenue?

The other field in which the matter arises of utilizing resources from general government funds to channel them into social security is in financing the transition from a pay-as-you-go-system to an individual account system. Thus, the discussion of this theme will be deferred until the section about reform processes in social security.

Going back to the subject of how to expand the taxable base so that more money can be collected to finance improved social security systems, some of the options that have been proposed include reforms to the structure of consumption taxes as well as to the income tax structure.

In terms of funding for social security, the evaluation of fiscal alternatives

should be made based on the impact of each alternative: (i) on savings; (ii) on the country's labor market; (iii) on the size of the informal sector; and (iv) on the process of social redistribution.

The discussion has shifted between basing a country's collection on consumption or on income, in each case striving towards simplification of the systems by establishing 'flat' tax rates; that is, taxing everyone the same percentage. It is worth mentioning that the most widely utilized consumption tax is the Value Added Tax (VAT), which comprises a percentage of the value added at each stage of production. It tends to be shifted onto the price the final consumer pays for goods and services.

Thus, a clean income tax, for example, would eliminate every exception and deduction and would tax labor and capital income with one single proportional rate. For its part, a 'clean' consumption tax rate would be established as a tax with one single rate on wages, at an individual level, as well as on income flow, at corporate level, allowing a 100 per cent deduction on expenses for new investments.

Several proposals have been made, some more complicated than others,[15] but, as Rosen (1999) explains, only a detailed study in each country can determine which tax is more applicable.

To attempt to summarize the debate, it would seems that a consumption tax may be preferable since it results in higher saving levels and it would probably also induce an increase in the participation or labor supply of older persons, thus helping to relieve financial pressures on social security. However, some authors find the possibility of distortions in the labor market in other places (Auerbach, 1996). Although some commentators have stressed that taxes on consumption are regressive, that is, they reduce the welfare of the poorest, others have found that they can be made progressive by establishing exceptions and credits by level and rate.[16] From the point of view of the redistribution sought in social security systems, the danger is that setting a general tax on consumption would negatively affect the older population that spends a larger part of their income, so there would be redistribution in wealth from older generations to younger ones.

In the continent, the most abundant research on these themes has been carried out in the United States. For example, Altig *et al* (1997) analyzed the consequences of substituting the existing fiscal system for some of the options presented in this section and they found that even though all of them result in certain benefits, these are only attained at the expense of a certain sector of the population; this tends to be the elderly and those with lower incomes.

VAT collection has become a very important source of income in Latin America, particularly in Argentina, Brazil and Chile, with collection levels similar to those of European countries (Tanzi, 2000). However, for other nations, such as Mexico, collection only represents around 2.5 per cent of GDP since it is operated in coordination with a series of subsidies that seem to benefit the higher income groups (Dalsgaard, 2000). Furthermore, there are great variations in VAT evasion levels throughout Latin America, mainly due to the legal definition of the taxable base. In particular, it has been found that countries with a single rate have fewer problems with evasion (Tanzi, 2000).

[15] For example, the X rate (Bradford, 1986) combines a progressive rate on wages with a rate on the flow of corporate income, where the tax rate on corporate income flows is equal to the highest rate applied to labor income. On the other hand, a 'flat' rate, introduced by Hall and Rabushka (1993, 1995), would be based on labor income and would allow some deductions (a certain amount on the number of family members) and would not tax the implicit income of rents and durable consumable goods, that is, it would not tax income on capital. On the corporate side, a rate would be applied on the flow of income, deducting payments to workers and allowing for continued depreciation of old capital (capital that already exists when the reform is made).

[16] On the other hand, practical and administrative considerations suggest that one single rate is better since administrative costs increase with different rates, evasion is not controlled and it is more costly for contributors to keep records of what they are paying for and to whom (Tanzi, 2000).

On the other hand, the Latin American countries proportionally collect very little from income taxes, at least when compared to industrialized countries. This is the result of several factors (Shome, 1999; Tanzi, 2000). First, multiple exemptions and deductions are granted, so that the taxable base is significantly reduced. Second, there is some trepidation regarding the taxation of financial income due to the belief that capital will leave the country. Third, a reduction in rates and the existence of administrations that are inefficient in collecting taxes have been observed. Property taxes also amount to a very small part of collection, especially because many property transfers are not legalized.

Ferreira (2001) studies, for the Brazilian case, several fiscal measures that could be taken to solve the problems concerning social security financing. With respect to the possibility of utilizing taxes on consumption, he finds that increasing the rate from 15 to 22 per cent would result in a 24.7 increase in the savings coefficient in the economy. Even if capital accrual would thus be promoted, the redistributive consequences of such a measure would be questionable because the welfare of older adults would be reduced by five per cent and that of the young would increase by seven per cent. That is, it would help to solve the problem of social security financing and it would encourage economic development, but it would be the older adults who would have to pay the cost.

In this sense, findings from the US research are confirmed, so caution should be advised: carrying out a fiscal reform could generate additional resources for social security, but in the process of changing the tax structure the welfare of the most unprotected groups could be damaged. Every country should then evaluate its own situation in detail before making any changes.

IV.5 System privatization or reform towards individual capitalization

As was previously reported, the pension systems of a number of countries throughout the world have recently been reformed . These reforms can be grouped into three models: the first is the Latin American model of individual accounts; the second is the Organization for Economic Cooperation and Development (OECD) model; and the third is the notional account system that was developed in Sweden.

IV.5.1 Components of the reformed systems and main reform models

Reforms to pension systems may include a combination of the three systems or 'pillars', as outlined in James (1998) and World Bank (1994):

i. The first pillar is a compulsory component of redistributive character, government administrated and financed through general taxes.[17] The PAYG system only includes this government component.
ii. The second pillar is a compulsory saving system, privately managed with defined contributions.
iii. The third pillar is a privately managed voluntary saving system.

The reforms that have been carried out worldwide can be grouped into three models (James, 1998):

1) *The Individual account model carried out in Latin America.* Chile was the pioneer and several Latin American countries have followed with some modifications. The main component is the second pillar of defined contributions, that is, contributions to the system are deposited in an individual account for each worker and they will accrue, along with the interest

[17] Examples of this pillar for reformed systems are: minimum pension guarantees by the government for individuals who have worked a certain number of years or a guaranteed minimum interest rate on the amount saved.

generated, throughout his/her working life.[18] A characteristic of this model is that workers are able to choose the fund manager who will handle contributions made to their individual accounts.

Most of the countries that opted for this model also included a public pillar. It can be present by means of contributions made from general taxes into individual accounts, through guaranteed minimum pensions upon retirement and/or minimum rates of return.

Finally, a third pillar is also included in most cases, that is, workers can make voluntary contributions to their pension saving accounts.

2) *OECD Model.* Some member countries of this organization have followed this model, and it is based mainly on defined contributions. Differing from the individual account model that is followed in Latin America, it is employers or unions, or both, who choose the fund manager for every worker in the company, or for everyone in an occupation group. These countries have a private pillar and, in some cases, a public pillar, but this is usually small. The model has some advantages. The first is that there are economies of scale since there is only one manager for large groups of workers, that is, the system can be operated at a lower cost per person thus making higher rates of return on savings feasible. The second is that employers usually have greater financial experience; and the third is that the marketing cost is probably lower than in the individual account model, which uses large resources to attract clients, one by one, to a fund managing company. The main disadvantage is that there is an important incentive problem since the employer chooses the fund manager but it is the workers who are running the risk: there is no guarantee that the company's goal when investing the funds is exactly the same as that of the insured worker.

3) *Notional account model.* Workers have individual accounts in which contributions and interest earned are recorded. However, accrual is 'notional' since resources from contributions are used to pay for the pensions of those retired instead of being invested in the accounts of the workers. As a result, the system is not funded even though the contributor has a statement of account which includes the amount accrued and knows the amount to which s/he is entitled upon retirement. In this sense, it is a reformed PAYG system, which in some cases can be complemented by a second funded private pillar. Sweden developed this model, which has also been adopted by Italy, Latvia and China. This system has the advantage of linking contributions to benefits, encouraging workers to contribute to the system.

It is important to point out that, because of the manner in which the reform models have been implemented, none of them completely solves the financing problems that are typical of the PAYG system. In particular, for any of the different pension systems to be financially sustainable, it is necessary to search for mechanisms to cover the deficit accrued in the previous PAYG system. Additionally, estimates of the funds that the public sector will require to cover the new redistribution promises (guaranteed minimum pension, minimum return rates), as well as a plan for its financing, have to be made in the reformed systems.

IV.5.2 The individual account model

From a theoretical point of view, it was expected that the individual capitalization systems would reduce distortions in the labor market, although, as it will be seen further on, it is not clear that this has been the result. In the first place, it was expected of workers would not only consider contributions made to social security as a tax, but that they would also

[18] According to the country, legally contributions may come from the worker, the employer, the government, or any combination of the above. However, as explained in section VIII.2, who pays the payroll tax may actually differ from what is legally recorded.

see how their savings for retirement gradually increased in their statement of account. To put it briefly, in the compulsory individual saving component, which is the most important, there must now be a one-to-one link between taxes paid and benefits received, which implies that benefit assessment will improve until it is equal to the contribution rate.

In the second place, it was thought that workers would have incentives to work for more years since in this way they would increase their pension; this was not so clear in the case of the PAYG system, with defined benefits.

On the other hand, compared to the PAYG system, in some cases one would expect an increase in national savings with this model through an increase in public sector savings since workers' savings would not have to be spent immediately, as was the case under the PAYG system.[19]

It is also considered that this model results in greater development of the financial markets. However, there are opinions to the contrary regarding the above-mentioned points, which will be analyzed in more detail later.

Although several countries in the continent have introduced these individual capitalization systems, or are planning to do so, the reform has not been the same everywhere. In order to understand the differences between pension systems within the paradigm of individual accounts, it would be helpful to introduce three concepts or components as defined by Geanakoplos, Mitchell and Zeldes (1998): privatization, pre-funding and diversification.

Privatization of the pension system consists of replacing the program of defined benefits, not funded, with a saving system based on defined contributions, including individual accounts in the name of the workers. Diversification consists of investing funds that have traditionally been invested only in government bonds in a wider range of assets. These assets may include national and international stocks and private sector bonds. Pre-funding is reducing the system's deficit, which can be made up of implicit or explicit debt. As discussed earlier, one of the main reasons for the deficit in the PAYG system is that the first generations of pensioners did not contribute to the system long enough to cover their pension.

All of the countries in Latin America that have reformed their systems privatized pensions for at least part of the population. However, the degree of diversification allowed by regulation varies. In Table IV.1 it can be noted that greater financial diversification was allowed to fund managers in Chile, Peru, Argentina and Colombia, including a combination of bonds from the national government and bonds from foreign governments, as well as domestic stocks. For Mexico, the diversification process has been more cautious and in 1997 only investment in government bonds was permitted, although, at this time changes in legislation that will moderately open the portfolio are about to be approved. Caution is being shown in some countries so that workers can acquire more financial know-how before more risky assets can be included. Thus, the maximum percentage of international financial instruments allowed in different countries is low, ranging from zero in Mexico up to 15 per cent in the case of Colombia. It should be noted that policies of this ilk might imply that the workers' financial portfolio could incur country risk. That is, the country's financial situation, either good or bad, will be reflected in the rate of return workers receive on their savings.

From a financial point of view, diversification is important in the sense that,

[19] As was previously explained, in the PAYG system contributions are not actually saved, but used to pay for the pensions of those who retire.

Table IV.3
Maximum Percentage of Financial Instruments Allowed in Different Countries

	Chile	Peru	Argentina	Colombia	Mexico
Domestic stocks	30%	35%	50%	30%	0%
International bonds	10%	5%	10%	15%	0%
Government bonds	45%	40%	50%	50%	100% (in 1997)

Source: Grandolini and Cerda (1997).

with the same risk level in any financial portfolio, it allows for higher average returns or a reduced risk with the same return. The reason is that the investor can cover against greater risks by including in the portfolio assets with rates of return that are negatively related, that is, when one asset has a low return, another yields a high one, so the average return does not vary significantly. For example, it is common for assets denominated in Latin American currencies and assets in US dollars to be negatively related in terms of returns: when there is devaluation in any Latin American currency, investments in US dollars offer high yields but those on investments in the domestic currency are low. Therefore, in order to minimize risk, it is prudent to have investments in both currencies in the portfolio. Using the typical example, limiting investments to 'safe' assets, such as those issued by the national government, is equivalent to limiting someone to carry all their eggs in a basket held in the strongest hand instead of allowing them to use both hands to carry the eggs.

In any case, attention should be paid to the fact that if pension funds are to be used to invest in the stock exchange as has been proposed in several forums, at least two types of risk can be introduced in the utilization of social security funds. (Elmendorf, Liebman and Wilcox, 2001). The first is that market variations could leave those who have already retired and those who will retire in the future with a different level income, which may be higher or lower than what might have been expected. The second is that even within a same generational group, or cohort, different pension levels could be obtained if individuals are allowed to make their own investment decisions.

As a result of the volatility of stock markets in the last decades (see Figure IV.8), if a substantial portion of pension funds is invested in the stock market, there is the possibility that the value of assets may drop below the value that is necessary to provide a minimum level of benefits. In this case, the government would be forced to look for a way to finance the deficit, probably by raising taxes to younger generations who would be playing the role of insurers to older generations (Constantinides, Donaldson and Mehra, 2002).

Table IV.4 shows estimates of implicit debt as a percentage of Gross Domestic Product (GDP). One must be cautious when comparing different countries since estimates were made using different methodologies. However, the figures in the table can shed some light on the scale of the implicit debt in social security. In the case of Venezuela, that debt represents only 30 per cent of the GDP, while Uruguay has the highest implicit burden, which is 214 per cent of the GDP.

Some countries decided to make their debt explicit by giving workers recognition bonds covering the period that had they contributed to the system before the reform. Chile was the first country to issue recognition bonds to affiliates of the previous system; later, when Peru and Colombia reformed their systems, they

Table IV.4
Estimated Implicit Debt in the Pay-as-you-go System
(as percentage of GDP)

	Venezuela	Peru	Colombia	Chile	Mexico	Brazil	Uruguay
Estimated implicit debt (% of DGP)	30% (1990)	37% (liability termination)	61.6% (until 2025)	126% (1980) (until 2030)	141.5% (1994) (until 2069)	187% (1990)	214% (1990)

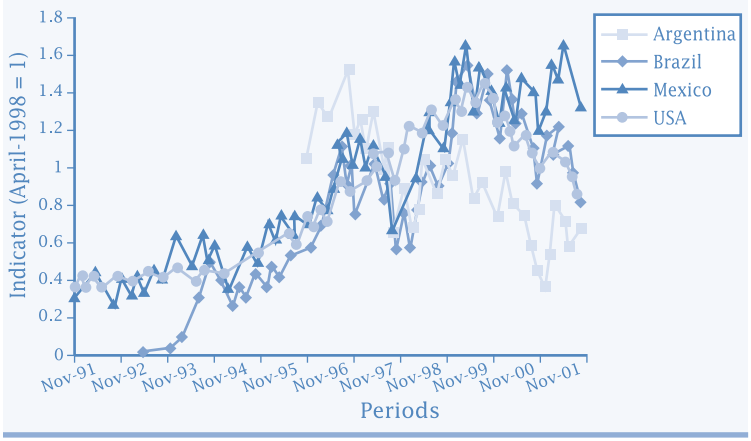
Source: Grandolini and Cerda (1997) and James (1998).

also issued bonds to those workers who had fulfilled a minimum contribution period. Other nations, such as Mexico, did not offer recognition bonds but they gave individuals who had contributed to the system prior to the reform the option to choose between a pension to be obtained under the rules of the PAYG system, or for the amount accrued to be paid into their individual accounts under the new system.

It is important for every country to make the amount of the deficit in the previous system transparent and to estimate the resources necessary to cover each year's transition.

Additionally, estimates must be made of the resources required and the financing options to cover the redistributive public component that was included in the reforms; it can include, among others, a minimum guaranteed pension or a minimum guaranteed interest rate.

Figure IV.8 Stock Exchange Indicators



Source: Reuters (2002).

IV.5.3 Framework for evaluation and comparison between systems

In countries that have already reformed their pension systems, as well as in those that are planning to do so, it is important to compare the PAYG system with the individual account system. For this assessment and comparison the conceptual framework that will be used is that developed by Mitchell and Zeldes (1996) for the United States case, extending it in order to apply it to other countries and including different points of view from other authors.[20] The points to be evaluated are whether the private market can substitute public insurance; the redistributive consequences; the change in household incentives; the macroeconomic effects; transaction costs; risks arising from the investment portfolio; and, finally, the effects on welfare and efficiency.

a. Can private markets substitute public insurance?

The first point to clarify in order to answer this question is what risks are covered under the PAYG system. For the United States, as recorded by Mitchell and

[20] In the case of the United States, according to Mitchell and Zeldes (1996), the two key elements for privatization would include a two-pillar arrangement. The first would give individuals who have contributed for a minimum number of years a base pension; the second pillar would comprise a defined contribution individual account, financed by means of payroll taxes, kept in a financial institution and managed by the individual.

Zeldes (1996), the PAYG system covers adverse events in labor income, life expectancy different to that expected and against inflation.[21] When evaluating each form of insurance, it is clear that: (i) the first, against changes in income, consists of risk sharing between generations, that is, the pensions received by the older population are related to the wages of the younger population. Therefore, this type of insurance cannot be provided by the private sector since it is not possible to make contracts with future generations. However, some exceptions to this rule will be noted below. (ii) The second type of insurance, longevity, that is, against the possibility of not having any income if one lives for a very long time, is paid under the PAYG system by means of an annuity. In case of privatization, on the other hand, the extent of coverage will depend on the particular design of the system. The market could efficiently provide this insurance if it were made compulsory to obtain an annuity, at least for part of the pension. However, if this is voluntary, there could be a problem of adverse selection as was explained in previous sections, in which only those individuals who expect to live for many years would acquire an annuity and those who did not have such expectations would not buy it. This would prevent the annuity market from developing as much as is socially desired. (iii) The third type of insurance protects against inflation. In order for the private market to be able to insure against inflation the country involved must have the necessary long-term financial instruments.

On the other hand, although insurance in the PAYG system reduces all these risks, this system includes a high political risk that cannot be covered by any insurance and that could be reduced by changing to an individual account system. The political risk stems from the fact that members of the country's legislative body can easily change taxes and benefits so workers cannot be certain of the benefits they will receive (Mitchell and Zeldes, 1996). Political risk is reduced in the individual account system since it would be highly improbable that the government would reduce the amount of resources accrued by workers in their individual accounts. However, the first pillar, which includes guaranteed minimum pensions and minimum interest rates, could indeed be modified by legislators. Therefore, this component maintains a political risk. This risk could be diminished with a clear financing mechanism such as the constitution of reserves earmarked to keep redistribution promises and/or, as in the case of Mexico, by directly assigning government resources to the individual accounts. Countries making comparisons between pension systems should consider the extent of the political risk in their country with regard to different arrangements.

b. Distributive consequences

In principle, the PAYG system is considered redistributive since individuals with higher wages make the same, or higher, contributions to the system as those with lower income, and the benefits received by low-income individuals are greater than their contributions. However, as Mitchell and Zeldes point out, individuals with a higher income tend to live longer so it is not clear how redistributive the structure of contributions and benefits really is. In an individual account system, the minimum guarantee can be kept high or additional resources can be added to the accounts of low-income individuals in order for the system to become distributive. Chile, Argentina, Colombia and Mexico have a minimum guaranteed pension (MGP) in their reformed pension systems. Peru introduced a MGP in its second round in 1995 (Cerda and Grandolini, 1998). However, as was highlighted by Mitchell and Zeldes (1996), in practice, it is possible for the private system to be less distributive in general than the PAYG system.

Kotlikoff (1996), on the other hand, points out that individual account systems could be designed in such a way as

[21] Pay-as-you-go-systems in other countries cover similar risks.

to keep elements of social redistribution since: (i) income received from the savings accounts could be taxed under a specific progressive fiscal system, that is, higher tax rates would be charged to high-income individuals; (ii) as individual account income represents a form of net flow derived from accrued savings, which is not directly dependent on the number of years the individual will live, the annualization generated in PAYG accounts, which benefits those who live longer (who turn out to be high income individuals) is reduced. Serrano (1999) considers yet another redistributive argument when he notes that in an individual account system the low-income worker will have access to rates of return from which he is normally excluded by the financial system. If this effect is significant, the individual accounts system will also introduce some social redistribution, without taking into consideration the minimum guarantees it usually includes.

As for inter-generation risk, this would not be necessarily modified upon adoption of an individual account system. On one side, Merton (1983) showed that the PAYG system, along with other fiscal instruments, can be used to share work and capital income risks between young and older adults, thus sharing the risk between present and future generations. Kotlikoff (1996), on the other hand, stresses that due to the existence of fiscal instruments that redistribute between generations – such as conventional fiscal deficits or changes in the tax structure – the ability of the government to share inter-generation risk is not affected by the adoption of the individual account system.

c. The effect of privatization on worker behavior

It is believed that reform towards individual accounts systems can change family saving incentives. However, the real effect that a change in system has on savings has not been clarified in specialized literature. On one hand, as political risk is reduced uncertainty diminishes and the so-called cautionary savings would decline. Cautionary savings are the amount a family would prudently save to prevent future political decisions from affecting their living standards in old age. On the other hand, the risk increases due to a possible reduction in inter-generation insurance and this would result in an increase in cautionary saving. Abel (1998) shows that based on a priori considerations, the result of changing from a PAYG system to a system of individual accounts can be either a reduction or a small increase in family savings. In reaching this conclusion, two effects which have previously been considered, are taken into account: (i) that individuals participating in the stock market before the reform might not change the total amount of their savings but merely adjust their investment portfolios; (ii) that individuals who did not participate in the stock market, expecting a higher return, might increase their present spending, thus reducing their savings.

With regards to having a family investment portfolio, that is, regarding decision-making and saving patterns, Mitchell and Zeldes (1996) mention that individuals who previously had no assets to invest would be benefited by the individual account system in general, and particularly through the possibility of diversification since they could choose the combination of risk and return that is most appropriate. Those who did have access to the financial markets will simply readjust their investment portfolios. Naturally, there could be a problem regarding lack of knowledge on the part of families that could lead to a higher risk situation that could affect their welfare.

With respect to household incentives, Mitchell and Zeldes (1996) mention that when the relationship between contributions and benefits increases upon privatization, one would expect less distortions in the labor market and for the labor supply to increase. In terms of the discussion earlier in this chapter, benefit valuation

would be improved (V), and consequently, an expansion of formal labor would be experienced. However, at the same time, social security reform processes give rise to other changes that work in the opposite direction to the incentives to increase job supply. In this sense, Orszag and Stiglitz (1999) observe that changes to pension systems can include distortions such as minimum guarantees or additional taxes necessary to finance the debt that is now explicit, so one cannot be certain what the final effect of the combination of distortions produced will be.

It is important to point out that the kind of labor incentives included in the reformed pension system can have financial implications for the social security system as a whole. If, for example, incentives were offered so that high income individuals could retire early having access to their individual accounts, as in Mexico, the consequence could be financial pressure on the social security system as a whole by leaving only low income individuals in the fiscal base. Related to this point, in an empirical study Gruber and Wise (1997) found that worker departure from the labor market is closely related to the possibility of access to the benefits in the system.

It is believed that in an individual account system social security coverage in the labor market diminishes on one hand due to the possible reduction in employer contributions that usually accompany reforms and, on the other hand, it increases due to the improvement in benefit assessment achieved through linking contributions and benefits. At present, the scarce research that shows evidence regarding this possibility has reached a variety of conclusions: one study noted that in the Chilean case, system coverage has actually decreased, from 71.2 per cent of occupied population in 1975 to 63.6 per cent in the year 2000 (Arenas and Hernández, 2001). On the other hand, Marrufo (2001) finds that in Mexico the rate of social security coverage increased after the reform among those workers who should benefit the most from the changes, while there were no modifications noted among the older population, who were to retire under the old system. This means this study does detect the expected impact of reform on social security coverage. In fact, Marrufo estimates that social security benefits received by workers increased by 10.5 per cent in relation to salary.

d. Macroeconomic implications

As explained earlier, the PAYG system produces an accumulated deficit, or implicit debt, because the first generations received resources without having contributed to the system. With the change to an individual account system, the deficit, which already existed, becomes explicit. For this reason the reform has actually no macroeconomic implications *per se* (Mitchell and Zeldes, 1996).

However, one of the key problems is that during the transition period workers must pay the taxes necessary to settle the debts of the PAYG system while at the same time accumulating assets for their own retirement (Feldstein, 1997). Thus, the question of financing the transition arises.

Workers do not necessarily have to pay double during that process. Several alternative methods may be used to finance transition; apart from a possible increase in the contribution rate, one method would be to resort to loans. Kotlikof (1996) assures that in this manner, in the short term, indebtedness serves to protect those who contribute while the PAYG system debt is settled, as in this way they are not the only ones to be burdened by the high cost of privatization.[22] A second alternative would be to set or increase consumption taxes, such as the Value Added Tax (VAT) or sales taxes.

Auerbach and Kotlikoff (1987) point out that utilizing consumption taxes is

[22] Generations that are active at the time of reform will pay the whole transition cost if there is no debt left for future generations. This indebtedness is precisely what allows financing the transition to become generationally equitable.

more convenient than utilizing income tax and that in the long term, the former allow for greater capital accrual. It has recently been recognized that taxes on consumption set off the capital accrual process partly because the implicit PAYG system debt is charged to individuals of older generations who were present at the time of reform; they are highly prone to consuming instead of accruing capital for the future (Kostlikoff, 1996). For their part, Kostlikoff, Smetters and Walliser (1999) have shown that the benefits of privatization on welfare are deferred even further into the future if salary or income taxes, instead of consumption taxes, are utilized to finance transition.

Another point to be considered regarding transition is the pressure that individuals could apply against transitory policies at the time the reform is made. Cooley and Soares (1999) state that, at the political level, a reform to social security can be implemented and sustained only if individuals, acting through a democratic decision-making system, choose not to abandon it; that is, the support of participants in the process is necessary. Hence, reforms to social security systems necessarily have to establish transition policies. These should include an optimal contribution rate in such a way that part of the cost can be transferred to future generations and the political support necessary to carry them out can be generated; that is, adjusting the interests of present generations to the interests of future generations (Cooley and Soares, 1999a; Galasso, 1999). To put it simply, reforms may backfire politically if those who making contributions during the period in which the implicit debt generated by the previous PAYG system is being paid are overburdened with high taxes.

Effect on total domestic savings. Mitchell and Zeldes (1996) observe that national savings will not be affected when changing to an individual account system unless fiscal policy is modified. Should politicians decide to reduce expenditure or increase taxes once the debt of the PAYG system becomes explicit, there would be a rise in national savings; that is, the sum of family, company and government savings would increase government savings. Sales *et al* (1998) note that if financing is carried out by means of debt, the saving rate can be slightly reduced. However, as noted by Orszag and Stiglitz (1999), if the debt, which is now explicit, follows the same trajectory as the implicit debt, there will be no macroeconomic consequence. Even though no conclusion regarding the effect of the reform on national savings can be offered, by giving individuals a choice regarding their investment, the same amount of national savings can be located and taken advantage of more efficiently.

Comparison of the rate of return. Although the rate of return on funds invested in the individual account system is higher than the expected rate in the PAYG system, Mitchell and Zeldes (1996) make it clear that the two rates cannot be compared directly. Returns obtained in individual accounts are higher partly because individuals are taking greater risk; that is, it is not possible to know if individuals are better off with the net result: more is paid but the risk is higher. In the second place, when the reform takes place there will have to be an increase in taxes to cover the deficit. These taxes will reduce the rate of return after taxes.

In summary, it is not considered likely that the rate of return in individual accounts, once it is risk adjusted and net of additional taxes, will exceed that of the PAYG system, a point on which Orszag and Stiglitz (1999) are in agreement. They add that only including interest rates in this assumption can yield incorrect results. Firstly, the transaction costs charged in the individual account system must be taken into consideration, since these tend to be very high and considerably reduce the net rate received. Secondly, if transition costs are financed

Table IV.5
Charges for Pension Management in Latin America

Countries	Non weighted average charge			Weighted average charge		Charge range	
	Number of funds	Reduction on return	Charge ratio	By assets	By members	Low	High
Colombia	8	0.65	13.5	14.0	14.1	11.9	16.7
Uruguay	6	0.72	14.7	14.4	14.6	13.2	15.8
El Salvador	5	0.85	17.1	17.0	17.0	16.1	18.4
Chile	8	0.88	17.7	16.2	16.1	14.5	20.4
Peru	5	0.96	19.1	19.0	19.1	18.6	20.0
Argentina	13	1.20	23.1	24.4	24.6	17.4	27.9
Mexico	13	1.39	26.0	24.5	26.2	19.3	35.4

The reduction on returns shows the effect of charges on the rate of return due to certain conditions regarding the period making contributions and terms of the plan. The charge ratio is defined as the rate at which charges accumulate over time as a percentage of the accrual of funds free of charge.
Source: Whitehouse (2000).

through indebtedness, the extra income in individual accounts is more apparent than real since it is counterbalanced by the cost of the debt. Finally, these authors make it clear that the increase in the rate of return by financing the cost of transition through taxes would actually be due to ample pre-funding and not to privatization per se.

Transaction costs. Mitchell and Zeldes (1996) explain that even though transaction costs are expected to increase when changing from a PAYG system to an individual account system, private plans offer a series of services such as account mangers that the government did not provide. They also mention that even with individual accounts, it is convenient for the government to continue collecting taxes since it is a natural monopoly with advantages in tax collection, and hence more efficient. Orszag and Stiglitz (1999) observe that in the case of Chile and the United Kingdom transaction costs have been very high. This seems to be inherent to the individual account system more than to a lack of competition among fund managers. The high transaction costs are related to sales levels, publicity and marketing, administration charges, regulatory and compliance costs and record control, among others. A centralized process like that of the PAYG systems could offer lower administrative costs.

According to studies on commissions charged by pension managers (OECD, 2002) in the American continent, Mexico is the country with the highest commissions, surpassed at world level only by those of Australian fund managers.[23] Whitehouse (2000) presents a comparison of pension fund commissions for Latin American countries, which are especially high in the cases of Mexico and Argentina. Table IV.5 shows these comparisons.

Some of the recommendations made regarding how to regulate excessive commission charges in the management of pension funds are (OECD, 2002; Whitehouse, 2000): providing an adequate regulatory framework for fund managers; appropriate regulation of financial markets in general; elaboration of slide-rules; encouraging clean competition; promoting information and transparency of contribution and benefit systems; restriction of charges by structure

[23] In a study on the administrative costs of retirement fund managers (AFORES) in Mexico during the first year after they were established, Mitchell (1999) points out that those costs were relatively lower than in other similar systems in Latin America.

and by level; and cross subsidies in favor of lower income workers.

e. Effects on welfare and efficiency

Finally, according to Feldstein (1997), the main reason for changing from a PAYG system to a system with individual accounts should be that doing so will lead to the increased welfare of the population. This can only happen if future earnings exceed the present value of the extra payment made by generations in transition. There must be certain conditions in the economy, such as that salary growth, which is the base for contributions, should be higher than a minimum value[24] and that the economy must be in constant growth. Regarding this last point, in previous sections it has been emphasized that GDP growth in Latin American countries has been very uneven, experiencing successive highs and lows over very short periods.

According to Kotlikoff, Smetter and Walliser (199), the privatization of the social security system produces an increase in general welfare only for members of future generations, especially the poor, even though the reformed system has no explicit redistribution mechanisms, while those generations that will have to pay for transition will suffer some losses in welfare.

[24] Wages growing at a higher pace than the net real interest rate of the depreciation rate of the country's wealth.

WHICH WAY FOREWARD?

In order to adequately respond to the question in the title it is imperative first to establish the minimum elements that must be considered in a methodology whose application may help the countries of the American continent to adopt political measures that will help to solve their problems in financing social security.

Before responding to this dilemma, however, it would be useful to review all the main points of the report. Therefore, this final chapter begins with a summary of the previous four chapters, before focusing on the manner in which each American nation might find its own way.

V.1 A summary of the report thus far

Chapter I. Defining and clarifying basic concepts

It was noted that one of the problems with the most widely recognized and used definitions of social security is that, in general, they enumerate a series of programs with or without including the social welfare. The taxonomy of the social security programs includes sickness, maternity, work injury, unemployment, disability, old age and death insurances, among the main components. A wider vision, in addition to the above, includes the social welfare programs.

A more general definition was proposed: social security is a scheme for insuring individual risks, through the equitable management of society's resources, through which the State guarantees that all citizens will have the same economic opportunities, no matter what family or group they belong to, or what idiosyncratic twists of fate they have to face throughout their life.

The State's participation in the social security system is justified in terms of achieving the optimum efficiency in the provision of goods and services of a purely public character – that is, those available for everybody's consumption, without the possibility of anyone of excluded – that, on the other hand, if the private sector were completely in charge of them, would lead to increased market failures, since their individual collection is not possible in practice. The same argument may be used for the provision of meritorious or preferential goods – whose consumption is imposed by the State in order to prevent individuals from neglecting their future needs. In the case of social security, given that many of these services are provided collectively, with a cost for taking care of one additional person of close to zero, and on occasions, there is no possibility of excluding individuals from receiving the benefits, the idea of 'public' goods is highly relevant. It corresponds to the public policies for the insurance of social risks to define what services are considered public or meritory, who must provide them, who must pay for them, how to pay for them and who is paid.

State intervention is also justified in terms of the positive externalities or benefits granted to society by health or retirement programs, since the profit-making private sector would not develop the programs up to the socially desired level. For example, health programs raise the workers' productivity with beneficial effects from the social point of view. Likewise, a pension program that facilitates the retirement of workers whose labor productivity has already declined, and who can be substituted by others with greater potential, may enhance the economic capacity of a country. In cases

where some branches or services of social security have been transferred to private enterprises, the State must stipulate in a contract the level of provision at which they should operate, or else establish subsidies and incentives so that the private enterprises will attend to social needs that would not necessarily result in a private profit.

Returns to scale or lower costs per unit of product – including lower administrative costs – as the volume of the production increases, make it convenient to operate at large scale, and favor the development of a monopolistic structure for some social security goods and services - one or few companies producing large amounts, and if these enterprises operate with criteria of private profitability this could generate prices and production policies which are not socially desirable. For example, the administrative cost of some social security schemes could be lower if they were managed collectively, instead of having a separate and individual scheme for each beneficiary. In such a situation, the State may reserve for itself the production of this kind of goods – especially in the case of administrative returns to scale – or else regulate the behavior and price structure of the private producer who is allowed to provide them.

A compulsory social security system may be the solution to problems of 'adverse selection' that arise in the private insurance markets, in which only high risk individuals insure themselves and therefore the system is deluged with the most problematic cases. In fact, a compulsory system means that both individuals with high and low risk will be insured, and therefore multiple programs to diversify the risks may be offered.

Finally, one of the most important reasons offered to justify State participation is the question of redistribution: even if the resources of a society were efficiently allocated, a community could be dissatisfied with the welfare distribution. The market does not guarantee fair income distribution and, precisely, the State may go into providing social security services that guarantee a socially acceptable level of minimum welfare for the groups less favored by the functioning of the economic institutions.

Chapter II. A panorama of American social security

This chapter enumerated some CISS member institutions from 38 countries of the continent that grant social security services, as well as the kind of benefits that they provide: old age, disability and death, sickness and maternity, work injury, unemployment, family allowances and social welfare. In general, in each country there are several institutions related to social security that cover different groups. In many cases, these are schemes for particular groups that rather than complementing, substitute the national system and their financial solvency is guaranteed by the State.

Making particular reference to the pension systems in the American continent, indicative data show that in most cases pensions are conditional on retirement, linked to earnings prior to retirement and the individual's labor history, and they are financed through labor taxes.

It was also shown that the social security expenditure of most countries of the continent exceeds the corresponding revenue, which indicates the clear existence of a deficit in the systems, which in turn implies that part of the cost of the benefits for the present beneficiary generations will be paid by the future ones. The largest proportion of revenue received comes from the employer's contributions, while the proportions coming from state and workers' contributions are similar.

The current social security scheme emerged in a post-war macroeconomic context, where it was considered a priority to implement such schemes, and that there was no contradiction between that choice and the functioning of the existing, almost full employment, economy.

However, the situation has changed over the last decades: the social security systems have grown and matured in most countries, some benefits have been consolidated and the social security systems themselves fulfill an important role in the countries' dynamic of development. However, it is also true that structural unemployment has increased, a large segment of the labor market falls within the informal sector, the labor trajectory and work methods have became more flexible, with women leaving home labor to incorporate into the labor market at an increasing rate, among other relevant phenomena.

It has been thought that social progress and economic growth are mutually exclusive, and in some cases, it has even been suggested that the existing social security system is a threat to competitiveness and employment. But, on the other hand, the importance of the public programs in favor of social equity in supporting societies' cohesion and stability has been acknowledged. Therefore the challenges that social security systems face today – such as the universality of the services, the protection of contributors against poverty during and after their active labor life and the creation of an environment for the development of voluntary retirement provisions – have been re-evaluated.

The relationships between social security expenditure as a percentage of the Gross Domestic Product (GDP) of several Latin American and Caribbean countries and some macroeconomic and demographic variables were analyzed. It was found that social security spending is strongly related to growth in per capita GDP (the greater the per capita GDP, the greater the social security expenditure as a percentage of GDP); to coverage (the more social security expenditure, the greater the coverage); to the proportion of the population aged 65 years and over (the larger the population in this age group, the greater the social security expenditure); to a country's tax burden as a percentage of the GDP, understood as the total taxation in a country (the greater the burden, the higher the social security spending).

As far as taxes are concerned, a statistically significant relationship was not found between social security spending and the workers' and employers' rate of contribution; that is, higher payroll taxes for social security do not necessarily translate into higher public expenditure.

Nor was a statistically significant relationship found between social security expenditures in Latin America and the Caribbean and the trade openness index. In this respect, it should be recalled that most of the countries of the continent have increased their level of integration to the world economy through commercial activity that is more liberated from State intervention.

Although the existence of a larger amount of workers in the labor market will, in principle, lead to higher social security expenditure, no significant relationship was found between those variables in several Latin American and Caribbean countries, although such a relationship was found in the United States and Canada. This might be due to the fact that in the first group of countries, around half of the active workers are subsumed in the informal sector of the labor market, and this means that incomes, and therefore social security spending, are not necessarily related to growth in the number of workers.

If total social security expenditure is taken as indicative of society's demand of benefits from these schemes, then it is clear that the inexorable process of population aging signals a sharp increase in the needs of social security in the coming decades.

If, on the other hand, this social security expenditure is explained as the availability of resources to meet this demand for services, it is evident that current financial problems are, to some extent, the result of the poor economic performance during the last two decades, par-

ticularly in Latin America, and if per capita GDP does not grow in a sustained manner in the future, the financial difficulties of social security will become more acute.

Chapter III. Financing problems and options for a solution

Over the last two decades, numerous countries in the continent have modified their social security systems, these include Argentina Bolivia, Colombia, Costa Rica, Chile, El Salvador, Mexico, Nicaragua, Peru and Uruguay; others are evaluating possible changes, including Brazil, the Dominican Republic, Honduras, Panama and the United States.

The financing of social security fluctuates between two approaches: the pay-as-you-go (PAYG) system and the one of individual accounts. In the first, the amount of pensions is established beforehand, and is mainly financed with payroll contributions from workers and employers. In the second system workers are compelled by law to contribute into an individual fund through payroll taxation; the capital and its accrued interest will be used to finance their pensions. These two approaches can also be applied to social insurances for health or unemployment, and they also contemplate the State's participation as a further contributor.

The PAYG system has the fundamental problem of being born with an implicit deficit, since the contributions of the first generations of workers to receive a pension were smaller than the benefits they received. However, while the ratio of pensioners to workers remains small, the scheme is financially sustainable, since the income from payroll taxes is higher than the total benefits to be paid.

In a mature PAYG system, the yielding of the fund's contributions is equal to the growth rate of the population plus the growth rate of the workers' productivity. The rate of population growth has been declining for several decades, and more recently productivity rates have also been falling. Therefore, neither the crisis observed in these kinds of financing schemes, nor the reforms proposed or executed, that tend towards the introduction of an individual accounts system come as any surprise.

It must be pointed out that, in addition to those discussed above, there are also other causes for the crises in the PAYG systems, such as the incidence of fiscal unbalances not attributable to social security that limit the government's economic and political capacity to assume its debts; bad decisions in the administration of the reserves of the social security system in its early stages (such as the decision to opt for investments with low yields); some mistakes in the design of schemes and political decisions whereby the structure of contributions and benefits is arbitrarily altered.

As regards the individual accounts systems, the fact that they do not contemplate defined benefits a priori does not mean that they are exempt from financing problems. Firstly, as the majority of countries initially adopted the PAYG system, when implementing one of individual accounts the problem arises of how to pay the debts of the former PAYG system. Moreover, in order to maintain the redistributive function of the social security systems, different governments have set up guaranties for granting minimum benefits. The financing of this component must, necessarily, adhere to the notion of distribution, which means that demographic developments continue to affect the solvency of social security systems under the individual accounts scheme.

The change observed in population trends is characterized by the transition from one phase with high fertility and mortality rates to another with low rates in both cases. This combination implies a rapid demographic aging process and a change in the patterns of epidemic incidence, leading to greater requirements of funds financing the services granted through social security: pensions, that now have to be financed by a declining working age population; and in health

services, because of the higher incidence of sicknesses such as cancer and cardiovascular diseases, for which care is more expensive than for those diseases more prevalent among a younger population.

This demographic trend has meant that the so-called senile dependency rate is increasing while the child dependency rate declines. If these two rates are combined the result is the total dependency rate, defined as the sum of the population from 0 to 14 years of age and the population aged 65 years or over, divided by population aged between 15 and 64 years. It is expected that in the coming decades, countries such as the Bahamas, Barbados, Brazil, Cuba, Guadalupe, Guyana, Martinique, the Netherlands Antilles, Puerto Rico, Suriname, Trinidad and Tobago and the United States will experience the greatest increase in the total dependency rates, while countries such as Belize, Bolivia, Guatemala, Haiti, Honduras, Nicaragua and Paraguay will experience a decrease in the total dependency rates, mainly due to the significant decrease in the birth rates.

However, the afore-mentioned evolution of demographic indicators is not reason enough to conclude that they will generate a problem of financial sustainability for the provision of social security services in the countries of the American continent. In addition, among other variables, the characteristics of the fiscal system, the labor market, economic trends and, of course, the structure of the social security system must be taken in consideration.

However, generational accounts have not been estimated for the majority of the countries of the region. These accounts measure the budgetary imbalance of the government in terms of comparisons between the net fiscal charge, that is, taxes paid minus benefits received, of the current generations – adults and older adults – and of the future ones – the young and individuals yet to be born – some researches already reveal worrying figures in the sense that if the current structure of taxes and transfers is maintained, higher contributions will be required of new generations in order to maintain the same level of services. That is the case of Argentina, Brazil, Canada, Mexico and the United States, where the children will have to pay the government more than their parents did in order to receive the same public services and transfers.

As discussed previously, the long-term sustainability of a social security system also depends on the evolution of the workers' productivity. In the last few decades several developments reflect stagnation in productivity growth. In the 1980s, Latin America and the Caribbean began a process of decreasing per capita GDP; in the 1990s, economic growth recovered somewhat although at a slower pace than in the past, and this growth has been associated with fluctuations in economic performance, and this has propitiated a climate of uncertainty that is harmful for development.

A decline in wages has also been experienced, reflecting a considerable drop in the labor productivity of the region, as well as an attempt by some governments to halt inflation. At the same time, the new openness to trade has meant there is a need to implement economic policies to attract foreign investment and to increase the competitiveness of the countries of the region, in which keeping salaries low plays an important role. These policies constitute an additional disadvantage for the social security systems, because of the reduction in the contribution base.

The informal sector of the economy has grown in response to the slow economic growth and the lack of formal employment creation. This phenomenon negatively affects the development of the social security systems because it is difficult to collect contributions from workers and employers in the informal sector. Furthermore, the flexibility of the working day and recruitment process has provoked an increase in part-time, occasional, or short-term jobs, leading to lower

remunerations and social security benefits.

It should also be acknowledged that the lack of capitalization of several systems of the continent has in part been due to political pressures. In the PAYG systems there has existed the high risk that members of Congress might modify both taxes and benefits, without considering the necessary provisions to guarantee the financial viability of such modifications. On the other hand, different social security systems have been negatively affected by a lack of adequate incentives for those responsible for investing the accumulated funds. In some cases this will mean that decisions are made in terms of a personal political gain, or it is often widely known that if the yields are low, the government is committed to bailing out the system with additional contributions; in other words, very often the decision-makers are not accountable. Also, it may the case that in some special programs, such as those for public servants, relatively generous benefits are promised to covered individuals, without little thought given to how these benefits will be funded, because it is known that the government will take care of the deficit in order to avoid political problems.

Furthermore, the excessive price increases in medicines and medical treatments have been another factor influencing the rising cost of health services provided by social security; at present it is not clear whether the medical superiority of the new treatments justifies their spiraling prices.

What are the options to solve financing problems? Five main groups of public policies were presented: increases in the contributions of workers and employers; the restriction of benefits; measures to increase the valuation of benefits on the part of affiliates; increases in the public resources devoted to social security coming from other sources; reforms or privatization of the PAYG system.

Each group of proposals affects, to a greater or lesser extent, the labor market, the savings and the accumulation of capital in the economy, the 'moral risk' inherent to the insurance systems – the excessive use of benefits – and the 'redistributive' role of the social security scheme.

The structure of the social security benefits and taxes may have significant repercussions on the labor market: on the general level of employment, on the coverage of the scheme and the individual decision to participate in that market. Therefore, one methodology to assess the impacts of diverse measures to ease the financial burden of social security must be concentrated in the analysis of these spheres of influence.

As was already mentioned, most of the social security revenues come from payroll taxes. In general, these fiscal burdens are criticized on the basis that they provoke an increase in labor costs, reduce the country's competitiveness and cause a decrease in formal employment. However, the final impact of these taxes depends mainly on two factors: on one hand, the valuation of benefits by workers are entitled to their contributions, and on the other, the possibility of shifting the payroll tax onto wages, that is, lower net earnings for the workers.

In fact, the pressure on labor costs may decrease with a tax reduction but also an increase in the valuation of services; this is the case because the difference between the tax rate and the valuation of service would provoke a pressure to increase the labor cost for the enterprises. For example, if the amount of contribution were $3,000 pesos to be entitled to services whose perceived value is $2,000 pesos, the net tax rate that would distort the labor market would be only $1,000 pesos. Hypothetically, when the value of the benefits is equal to the amount of the contributions, it could be said that, in effect, there would be no tax only a contribution and, therefore, there would be no distortion in the labor market.

As regards the possibility of shifting the total payroll taxes onto the workers as lower net wages or more working hours, it is important to observe that the real or economic incidence of the payroll tax structure does not have to be equal to the legal incidence. That is, the amount effectively paid by worker and employer in terms of labor taxes might be very different to what is stated by law, and this depends on the sensitivity of the supply and demand of workers. In other words, how much less workers would want to work if their net wage were reduced, and on the other hand, how easy it would be for firms to use other productive factors – workers not covered by such schemes or capital to substitute manual labor – to carry out the jobs of the workers that must pay contributions.

In general, the social security systems encourage early retirement from the labor market mainly due to the fact that, in most countries, it is necessary to retire in order to receive a pension, and because the structure of benefits and contributions provides diverse economic incentives for retirement: for example, non-taxable pensions. Incentives for early retirement render difficult the financing of benefits. Also, the social security schemes may affect the decision to participate in the labor market even among young workers and the workers' spouses: i.e. when benefits are paid to other members of the contributor's family. Then, it can be said that in general the low levels of valuation of services and high contribution rates to the social security system discourage the labor participation in covered jobs.

If as part of a social security system, individuals are obliged to save in a public scheme, they might reduce their private saving, what would be the effect on fiscal savings, that is, the resources collected by the social security system? In a PAYG system, as a large part of contributions are not really saved but devoted to the payment of current pensions, the increase in public savings would be less than the reduction in private savings. In a 'pure' individual accounts scheme – without state guarantees of minimum benefits – the savings channeled into social security would be equal to the decrease in private savings. Therefore, when considering the effect that each system would have on public and private savings, it is concluded that the individual account system would do more to promote total saving than PAYG. On the other hand, if the period before an individual retires increases, and this coincides with an increase in life expectancy, then it is possible that savings would increase because the worker would have to anticipate more years without labor income during his/her old age. In this sense, it is said that social security promotes savings. The yield rates of the funds contributed to social security, as well as inheritance and investments in their children, also have influence on the savings level of a country.

For any kind of public policy proposed by the State, there is a further source of financial pressure: the excessive use of health services – or the 'moral risk' of health insurance. Usually, this occurs when levels of insurance are generous or the use of benefits does not require any additional payments, this provides incentives to affiliates of the system to utilize the benefits indiscriminately.

In general, in the PAYG system there is an implicit redistributive element since pensions tend to favor low-income workers, and the contribution rates do not vary among the active workers. In principle, this redistribution element seems to be absent an individual accounts system; nevertheless, is possible to sustain this element with state intervention to guarantee minimum amounts of pensions. The element of income redistribution in social security is not limited to pension benefits, but extends to health services, which are highly redistributive because they are more frequently used and, therefore, more highly valued by low-income individuals.

Chapter IV. What is the scope of the options to strengthen financing?

This chapter identified some of the particularities inherent to each of the policies proposed for financing the social security, and assessed the theoretical and practical knowledge regarding the scope of each of these policies.

One policy proposed by diverse international organizations is to effect a decrease in the contribution rates, on the assumption that the extension of the social security benefits would be achieved by reducing the individual contributions, and therefore, increasing coverage. In this manner there would be a reduction in the size of the so-called informal sector of the labor market, which at present accounts for almost half of the active population in Latin America and the Caribbean. In general, workers and employers in this sector do not contribute to the social security system. The relationships observed between per capita GDP and the level of informality (when the former increases, the latter decreases) and between per capita GDP and the level of coverage (when the former increases so does the latter) are of particular interest. Although weaker, a relationship was also noted between the total payroll tax and informality or coverage (when the tax rate increases, informality tends to rise and coverage tends to fall). One might then wonder what would be the probable impact of a change in the contribution rates on employment, total collection within the social security system and the taxable base.

Regarding the impact of contributions on employment, the evidence for the continent is mixed, although it must be said that most of the few studies on the topic conclude that payroll taxes have only a small impact on net wages and lead to a slight contraction in covered employment. It is also detected that investment measured as capital per worker in the most productive sector of the economy (in this case in the formal sector) strongly affects the size of the informal sector. This kind of investment has been decreasing in most countries of Latin America and the Caribbean.

As regards the valuation of social security services, the evidence available for some Latin American countries shows that, comparing equivalent jobs and individuals, workers not covered by social security have a higher net wage than covered workers. For example, in Chile the differential is about nine percent, in Ecuador 18 percent and in Mexico 13 percent. This is an indirect measure of the valuation of services that is usually lower than the rate of contribution, and almost always represents between 50 and 60 per cent of the burden. Undoubtedly, this is the most complicated situation to face when resolving financing problems through an increase in contributions. If such a measure is implemented, it is likely that the entitlement to benefits will be discouraged, or even diminished with or without an associated increase in the quality of services. Although the final impact also depends on the sensitivity of labor supply and demand in the case of wage changes, it can be said that an increase of the contribution rates is not advisable in this situation, unless there is certainty that measures to increase the valuation of the services will be simultaneously introduced.

Furthermore, one must take into account the effect of changes in the social security system on total collection rates. The effect of a change in the rates of contribution on the amount collected depends on the interaction of two opposing trends: the increase in income for the scheme from workers who continue contributing and the decrease in the number of contributors. It is possible to estimate the contribution rate that will maximize collection in each country; this optimum rate depends decisively on the sensitivity of labor supply and demand to a change in wages. In Mexico it is considered that the system is in equilibrium in the sense that a lower or higher contribution rate could lead to a fall in the collection of taxes, while in the Latin American coun-

tries with a medium level of per capita income it seems that the maximum collection of revenues is achieved with a total rate of payroll tax of around 18 percent, although it is strongly suggested that each nation should carry out the analysis corresponding to its own reality.

Given the low levels of coverage, the problem of financing could be somewhat improved with a strict fiscal supervision measure or by including more concepts subject to the payroll tax. The extension of the tax base seems to depend on an increase in the number of affiliates, through the provision of a social security that responds to the needs of the different population groups that have been left on the margins, as well as through seeking other financial sources in addition to payroll contributions.

Another option for financing could be the restriction of the following type of benefits: an increase in the minimum age of retirement and/or reduction of the early retirement benefits, extra payments or co-payments in some health services and the indexation of pensions to the inflation rate or to wages.

The demographic trends, medical advances and the increase in life expectancy tend to raise the productivity of older citizens whose labor effort could foster the growth of the domestic product, as long as the economy could produce the additional jobs needed. An increase in the retirement age would then seem to be an option to improve the financial situation of the pension system because the contributors would remain longer in the labor market and, at the same time, the period in which they would be supported as pensioners would be reduced. But, to what extent would raising the minimum retirement age of workers bring financial relief to the social security system?

The answer depends on the interaction of two opposing effects: on one hand, the tax base is increased due to the increase in the workers' contribution years; on the other hand, savings would diminish as individuals would have to support themselves for a shorter period, and this would have a negative effect on capital accumulation, provoking a decrease in wages, and therefore, reducing the taxable base. These effects have been studied in the case of the United States and Canada and, in general, there is particular skepticism with respect to the scope of this option to alleviate the financial burden of the social security systems. These opposing effects have not been sufficiently analyzed in the case of the economies of the rest of the region.

Another public policy option is the creation of extra payments or co-payments in some health services that besides providing additional resources for the social security would discourage the excessive use of benefits by the affiliates – the so-called 'moral risk' of insurance systems. Evidence gathered for the United States suggests that the co-payment system reduces the frequency of the use of services, but not the cost per visit, and it seems that in some cases it has a negative effect on the quality of services.

Depending on the specific macroeconomic situation in any country, it may be appropriate for social security financing to consider indexation to prices, or alternatively, the wage index to adjust the amount of pensions in the course of time. The indexation of pensions to prices is controversial, the main reason being its effect on the inflation level, because this would create an obstacle to achieving the goal of stabilizing an economy undergoing financial turbulence. Real salaries have experienced a very slow recovery in Latin America and the Caribbean since the end of the last century. This means that wages have risen slightly faster than the rate of inflation, and at first glance, the indexation of pensions would ease the financing problems, since as the contributions of the active workers are based on wages, they would grow faster than the benefits to be paid. However, if the inflationary stability achieved over the last few years was lost, as could happen with

a devaluation, indexation to inflation may become self-defeating for the financial soundness of social security.

As long as contributors to social security perceive their contributions as a payment for services instead of taxes, collection becomes less difficult, and this facilitates the extension of coverage and the financing of the system. Some measures that may help to increase the valuation that workers give to social security benefits are: a closer link between contributions and benefits, as well as management improvements and reorganization of the health sector.

The dissociation between contributions and benefits is particularly marked in the PAYG systems, and this may reduce the perceived value of such benefits for active workers. Precisely, the close linkage between contributions and the amount of pensions seems to be a virtue of the individual account systems, because the worker can follow the accumulation of his contributions that are registered in a savings account in his name. However, no conclusive evidence has been found of the effect that such a system has on the valuation of the pension services.

Management improvements and the reorganization of services may reduce social security costs. There are some experiences in the United States in this respect related to the policies of budget allocation for the hospitals based on the diagnosis rather than the number of services granted in the previous period. Nevertheless, it is not clear if what was achieved in terms of cost reduction compensates for what may be lost in terms of quality of medical attention.

In addition, there exists the belief that the public health sector must focus on health prevention to avoid a breakdown of the doctor/patient relationship. It is thought that these measures would not only increase the services valuation by the contributors but might also curb the costs, because if the relationship between patient and doctor is strengthened, the latter is able to acquire more knowledge regarding the state of health of the former.

In the Latin American countries it is normal for the bulk of the health services to be financed and provided by the public sector, although in reality, universal coverage has not yet been achieved. Some researchers have discussed the pertinence of a national medical insurance, through which the contributions of the insured persons could be used to pay for the health costs of free social welfare programs. Among the multiple challenges of such a scheme is the definition of the medical expenditures considered to be catastrophic because their amount compels the individuals to significantly reduce their standard of living.

Two possible sources of funds from the public budgets could be found: the existence of the so-called demographic bonus; and the national taxes on consumption or income.

The period in which the proportion of dependants – persons below the age of 15 and over the age of 64 years – with respect to working age individuals diminishes at a fairly constant rate is called the demographic bonus. This happens in the period immediately before the total dependence rate reaches its minimum value; in Latin America, this period will occur around 2025. Some researchers have suggested that this process of demographic change provides the opportunity to liberate public funds previously devoted to the attention of children and reassign them to social security for the elderly. However, it must be borne in mind that in order to crystallize the opportunities of the demographic bonus, the productive potential of the working age population in the formal sector – contributors to the social security system – has to be used in full. Besides, the increase in the supply of workers may lead to a drop in earnings, and thus the taxable base. On the other hand, the increase in the health costs per person with age, starting in adolescence,

and the high costs per student of high school and tertiary education may eliminate the advantage of the demographic bonus or shorten the period where it is evident, because the beneficiary population does not necessarily diminish: there will be less children, but more young adults, for whom education and healthcare is expensive.

In the last two decades, most of the nations in the continent have cut their public budgets, and therefore there is little margin to reassign resources to social security. Obtaining additional resources for the social security system is thus related to the larger issue of fiscal reforms, that is, the general structure of taxes that allow an increase in total collection. The evaluation of the fiscal policies should be made based on the impact of each alternative on national savings, the labor supply, the size of the informal sector and the process of social redistribution.

The idea is to simplify the tax structure into one or two general tax rates, and discussion has been focused on the taxes on consumption and income. The most commonly used consumption tax Value Added Tax (VAT), which consists of applying a percentage on the value added at each stage of production and tends to be shifted onto the final consumer prices of such goods and services. This tax has turned out to be a very important source of income in several countries such as Argentina, Brazil and Chile. The consumption tax seems preferable to income tax because it results in a higher level of savings and, probably, also induces an increase in the labor participation of the elderly, and so it would help to ease the financial pressures of social security. However, some authors find that the consumption tax may be regressive, that is, it may reduce the welfare of the poorest – because a higher share of their income goes directly on consumption compared to the richest; besides, because the incomes of older members of a society are affected to a greater extent – because they consume a larger share of their income compared to younger members – this tax redistributes the wealth of the older generations towards the young ones. Of course, these disadvantages could be overcome if exceptions and credits by levels and rates of consumption are imposed. As regards income tax, the level of collection observed in Latin America is proportionally lower than in the developed countries. The taxable base is smaller as the result of numerous exceptions and deductions, there is a fear of taxing financial capital because it is believed that it then would leave the country, and there are inefficiencies in collection management .

From what has been noted above, although a fiscal reform could generate additional resources for social security, policy-makers must avoid changes that affect the welfare of the most unprotected groups. Each country must then evaluate its situation in detail before undertaking fiscal modifications.

A number of countries throughout the world have recently reformed their pension systems. The models adopted may be classified into three general types: the individual account system of Latin America, that has been mentioned above; the system adopted by the Organization for the Economic Cooperation and Development (OECD), and a system designed in Sweden known as one of 'fictitious' accounts – the national account system. The OECD model has been implemented in several countries of this organization and is mainly based on defined contributions. Unlike the model of individual accounts followed by Latin America, the firms or the occupation groups make the choice of manager for the individual accounts and the public component is usually small. In the 'fictitious' account system, the savings and interest generated by active workers are recorded in individual accounts – and so the worker knows the amount he is entitled to upon retirement – but these are used to pay for the retirees' pensions.

Those three models include three components or pillars: the first is the re-dis-

tributive pillar, administered by the State and financed with general taxes. The traditional PAYG system only includes this public component; in the system of individual accounts examples of this component are the minimum guaranteed pensions or a guaranteed minimum interest rate on the funds saved. The second component refers to the compulsory system of defined contributions that are privately administered; the third component is the voluntary savings system, also with private administration.

It is important to note that, given the way in which reforms have been implemented, the financing problems typical of the traditional PAYG system do not completely disappear. In particular, mechanisms are needed to pay for the accumulated deficit of the former PAYG system. Above and beyond this, public funds are required to finance the new redistributive promises regarding minimum pensions and yields .

As was pointed out earlier, the individual account system implemented in several Latin American countries has an important component of privatization because it replaces a non-funded defined benefits program with a savings system in individual accounts, based on defined contributions. In this system, the accumulated deficit of the PAYG schemes becomes an implicit or explicit debt that comes close to, or surpasses, the GDP of several countries of the area. Some governments have decided to make this debt explicit through the issuing of recognition bonds to the affiliates of the previous systems; others, like Mexico, have given contributors to the previous PAYG system the choice between a pension in this system, or the accumulated savings in their individual accounts under the new system.

The level of financial diversification allowed in the portfolio of investments of the individual accounts varies notably among the Latin American countries. It is important to recall that a correct or erroneous decision in funds investment will be reflected in the yield rates that workers receive on their savings for retirement. In general, in South American countries fund administrators have been allowed a greater degree of financial diversification, including a combination of national government bonds and those of governments of other countries, as well as of domestic shares; that is not the case of Mexico, where at the beginning of the system, 100 per cent of the funds saved had to be invested in government bonds.

Finally, the report presents a framework for evaluation and comparison between the traditional PAYG system and the new one of individual accounts. The change from one system to the other brings to the fore the question of how much private markets can substitute public insurances. The PAYG system protects affiliates against adverse events in labor income, a longevity that differs from what is expected and against inflation. To achieve this aim, the risks are shared among generations, and thus, the pensions received by the retired elderly population are related to the incomes of the young active population. Insurance with these characteristics cannot be provided by the private sector as they cannot make contracts with future generations.

The PAYG system also guarantees a life annuity to the pensioner; the private sector could also make this guarantee, depending on the particular design of the system. For example, if the possibility of contracting a life annuity becomes optional instead of compulsory, the market of life annuities will not reach the necessary level of development required by the society due to emergence of the so-called risk of 'adverse selection', that is, that only high risk individuals will seek the insurance. In some countries, the PAYG system protected pensions against the risk of inflation; in the individual account system protection against inflation is given if there are appropriate long-term financial instruments.

Both systems face what is called political risk. In the PAYG system this risk aris-

es because members of the legislature may easily change the levels of taxes and benefits, and workers do not know for sure what will be the benefits that they will receive in the future. In the individual account scheme the political risk is reduced due to the low probability of the accounts being confiscated by the government; however, the political risk that the legislature might modify the guaranteed minimum pensions and the minimum yield rates still persists. This risk may be reduced through the creation of reserves directly devoted to fulfilling the re-distributive promises and/or, as in the Mexican case, by directly allocating government resources to individual accounts.

The PAYG system has redistributive consequences, since high-income individuals pay the same contribution rate into the social security system as low-income workers, while benefits received by low-income workers are proportionally higher than their contributions. Nevertheless, it is important to note that high-income individuals tend to live longer, and this reduces the redistributive effect. In an individual account system, the redistributive component consists of guaranteeing minimum pensions or adding additional public resources to the accounts of low-income workers. Some authors have also highlighted a redistributive effect in the fact that the low-income workers will have access to yield rates on their savings from which they are normally excluded by the financial system. Argentina, Colombia, Chile, Mexico and Peru introduced minimum pensions in their legislation. However, some researchers have pointed out that the individual accounts system may be, in practice, less redistributive than PAYG; therefore, they suggest a specific progressive fiscal system for interests from savings. Besides, it is thought that the government can also manage the inter-generational risk that is traditionally less in the PAYG system, in an individual account system, through policies of fiscal deficit or changes in the tax structure.

The behavior of workers before the change in the pension system may affect private savings, employment and coverage. However, the scarce research presenting evidence with respect to this suggests the existence of opposing forces in the incentives for precautionary saving - they diminish because of increases in the certitude of savings for retirement, but increase because of a probable rise in the inter-generational risk. Regarding the supply of workers, on one hand this may increase due to the probable rise in the valuation of services but, on the other, affiliates may be encouraged to retire early in order to have access to the individual accounts, above all the high income workers, who are in a position to accumulate greater retirement funds. The problem is that those who contribute more because they have higher income would leave the system earlier. Regarding the coverage of the systems, there is no clear evidence of what the result could be.

As noted earlier, the PAYG system presents an accumulated deficit, and for this reason during the period of transition to the individual accounts scheme active workers must contribute the necessary taxes to pay off such a debt and, at the same time, accumulate savings for their own retirement. This raises the question of financing the transition, for which there are several proposals such as borrowing or increasing general taxes, such as those on consumption (VAT) or income. In any case, these reforms to social security are possible and sustainable only with the support of the participants in the process; and there lies the importance of the transition policies from one system to the other, in that these must conciliate the interests of current generations and the future ones, in particular, by avoiding excessive charges for the older population.

Some authors point out that national savings will not be specifically affected by the change in the pension system, because the path of the implicit debt of the PAYG system, now explicit in the indi-

vidual accounts system, still depends upon the fiscal policy adopted. Apparently, the yield rates of the individual savings are higher than those expected in the PAYG system. However, this is because there is a higher risk; furthermore, due to the accumulated deficit, the net rate of taxes may be considerably lower than the estimates. It should also be considered the transaction costs of the individual accounts administrators related to expenditure in advertising, marketing, management and control, among others, as is typical of a decentralized system, have in practice turned out to be too high. This is reflected, in turn, in high commissions for the administration of the pension funds, and therefore diverse proposals have been put forward for the creation of a regulatory framework for the funds administrators and the financial markets. Evidently, if funds are invested in the stock exchange, there is the risk of generating different amounts of pensions for comparable individuals, not only between generations but also within the same generation. Likewise, the State would be obliged to finance the risks of speculative investments.

The fundamental goal in making a change from a PAYG system to one of individual accounts must be to increase the welfare of a country's population. This will be achieved if future profits exceed the current value of the extra payment made by generations in transition. In order for this to happen, the economy of a country must maintain constant growth rates in its domestic product and wages. It has been already noted that GDP growth in the Latin American countries has been very uneven, experiencing ups and downs over short periods; there has been a slow recovery in wages over recent years after important shortfalls.

It seems clear that the increase in welfare that an individual account system would grant is reserved for future generations, because the generations that have to pay for the debt of the transition will suffer some loses in their welfare.

V.2 Conclusions: the methodology to assess financing options

The social security schemes have emerged according to the own national characteristics. In some cases, the arguments proposed as justification for the existence of a social security system under State tutelage will be more relevant. Then it is necessary to establish the position of the State to understand why such schemes emerged and, above all, to understand the evolution of their distinctive features.

Studying which explanation of social security is more relevant becomes of fundamental importance in order to discuss financing options and reforms to the systems. For example, if the considerations of returns to scale are relevant, this implies that the government could operate a PAYG pension system at a lower cost than private institutions investing the worker's funds in separate individual accounts. The cost of administrating each worker's account is only one of the many elements to be considered when deciding between one system and the other.

If the raison d'être of social security is that of redistribution in order to alleviate poverty in older and vulnerable groups on the basis of social justice, then a scheme of individual savings accounts or defined contributions will surely require a minimum pension guaranteed by the State in order to ensure that upon retirement the worker's savings fund will be sufficient. In this case, the guarantee would be designed to fulfill the social objective of redistribution, although this would increase the difficulties in regulating the administrators of the savings funds, since they would to some extent be covered by the State in the event that they could not pay the yields promised on these resources. In any case, the principle of social equity as the main element in the design of programs would make it difficult to eliminate a minimum fiscal commitment on the part of the State.

It should be recalled that the social security theory based on the notion of externalities explained that it is socially convenient for the elderly to retire in order to make way for the young, thus increasing the level of labor productivity. However, if the productivity of the elderly increases given the advances in public health and life expectancy, it would be preferable for the social security systems to increase the minimum legal age of retirement in order to take advantage of the higher productivity brought by the old 'young' (Mulligan and Sala-i-Martin, 1999b). If this argument is relevant, then it would be important to reform the social security systems so that the age of retirement is raised.

As long as an argument for the existence of social security systems supported by the State outweighs any other in a given country, important implications will need to be considered when discussing options to reform or finance the corresponding scheme.

After presenting concepts and theories that may be considered the most relevant in the discussion of the current challenges faced by the social security systems in the American continent, the most general conclusion is that there is no single path to be followed in terms of the necessary reforms: each nation must find its own way to continue the financing its respective schemes.

However, the Inter-American Conference on Social Security would have not a raison d'être if one could not aspire to propose a methodology to be applied in the quest for a pertinent financial solution.

Therefore, this final part of the report outlines what could be considered the indispensable elements of such a methodology, proposing a debate or discussion based on the following steps or elements:

a. Agreement between political participants over the discussion process.
b. Definition and hierarchization of criteria to analyze possible reforms.
c. List of the possible measures to modify the schemes.
d. Evaluation of measures: gathering of information to make decisions.
e. Broad discussion of the results.

Although the political process through which a society resolves its dilemmas (as in this case the financing of social security) is very complex, the establishment of this methodological scheme could be seen as an exercise in which all participants in the debate assess the options, paper and pencil in hand, calling on the experts to bear testimony on the questions that could arise during the process, in order to be able to make a final decision.

a. Agreement between political participants over the discussion process for possible reforms

For historical and political reasons common to most of the countries in the continent, the discussion of necessary reforms to the system of fundamental laws, such as the Constitution, the Labor Law and amendments to social security, tend to be restricted to the agents that in some way are benefited with the current state of pre-reform of such laws.

For example, it is common for state representatives, employers and workers occupied in the formal sector to take part in the technical councils of the main existing social security institutions. The participation of workers and employers is generally achieved by assigning places in the councils to organizations with more political power, such as the large unions and trade and industrial chambers.

If the proposals for public policies to strengthen the financing of the social security systems are made within this kind of commission, or if they have to go through its supervision, then it is clear many of the changes that have been ana-

lyzed in this report may not be proposed, because such a commission would lack the opinion of agents excluded because their political representatives are not well organized.

Thus, it would be necessary to search for mechanisms through which the participants in the discussions and decision-making would include workers in the informal sector not covered by social security, and who are generally self employed, employees of micro-enterprises, women, or the young, in addition to representatives of some non-governmental organizations, legislators from backward regions and micro-entrepreneurs.

These groups may benefit from some of the measures designed to deal with financing problems that have been examined here, while those who have something to lose are usually represented by larger unions and entrepreneurial organizations that are, in general, over-represented in the political discussions.

b. Definition and hierarchization of criteria to analyze possible reforms

Once the agents to be included on the panel have been selected, the discussion should be focused on the criteria for analyzing possible reforms. Following the logic of the discussion of this report, it would be proposed to assess each political measure for the financing of social security according to its effect on:

1. *The general labor participation.* Does it encourage an increase in the labor supply?
2. *The coverage of the system.* Would it grow or diminish?
3. *Savings and capital accumulation.* Would the availability of more resources for social security foster economic growth?
4. *Social redistribution.* Would the less favored groups benefit?
5. *Financial soundness.* Would it bring more revenue collection? Would there be full exploitation of economies of scale? Would there be a limit to the excessive use of benefits (moral hazard)?
6. *Contribution to the total solution of problems in financing the social security system.* Does the measure contribute to a considerable extent to improving the financial soundness of the system or does it make little contribution?

At this stage of the methodology, participating agents must establish the weighting or hierarchization of these criteria according to the political, economic and social context of each country: how important is it to preserve the redistributive role of social security? How much weight must be given to whether a measure fosters the savings and, therefore, the growth of the country?

Here, agents would try to assign a percentage between zero and one hundred to each of the six assessment criteria, according to its importance for the inhabitants of the country and taking care that the sum of all of these weightings is equal to one hundred. This will force participants to assign priority levels.

c. List of the possible measures to modify the schemes

This report has analyzed possible reforms to social security systems, which, of course, are not exhaustive since each country may devise or consider others not considered here. However, those enumerated in this document are:

1. Contribution rate increases.
2. Widening of the taxable base.
3. Increases in the retirement age, or a decrease in incentives for early retirement.
4. Co-payments or extra payment for health services.
5. Indexation of retirement pensions to inflation or wages.
6. Management improvements.
7. Use of the demographic bonus.
8. Fiscal revenues from other sources.
9. Privatization of the pension system.

d. Evaluation of measures: gathering of information to make decisions.

Undoubtedly, none of these measures in itself offers a complete solution to the problems presently facing the social security systems, because each option has advantages in meeting certain criteria but disadvantages with regard to others.

At this stage, political options must be given a mark let us say on a scale of zero to ten, according to the extent to which each of them is effective in giving a positive result by category or assessment criterion.

The evaluation must be made following a dialogue between the participants with the right to vote on the measures and experts on these matters who can provide information or research evidences that help to better evaluate the possible impacts of the political options.

Once the pertinent information is presented, participants must review and qualify each possible measure of financial relief according to considerations such as those outlined below.

For example, an increase in the contribution rate would bring consequences in several spheres. In terms of coverage, an increase in the contribution rate would probably have an impact on the level of informality, that is on the incidence of jobs not covered by the system, due to rising labor costs. Advisors should request information or studies to help them determine to what extent this might occur, but in any case, it is likely that the mark assigned to an increase in contribution rates would be low when evaluating its repercussions in terms of coverage. On the other hand, the effect on total collection would be ambiguous, because this would depend on the optimal rate for that country, and therefore the panel would rely on information from experts to ascertain whether the increase in the contribution rate would have a positive impact on total collection, or whether the impact would be negative. And thus, each measure would be assessed according to each of the criteria stated in step (b) of this methodology.

Another example of how the assessment could be made, would be to consider the privatization of the pension systems that brought together a decrease in the payroll taxes and an increase in the valuation of services – to improve the association between contributions and benefits. The experts could present evidence to the advisors demonstrating the degree to which this would foster the creation of formal employment, that is, the extent of coverage. It is supposed that, in theory, the marking of the measure should be high for this criterion. Moreover, participation in the labor market would be increased given the reduction of distortions because benefits would be strongly linked to the contributions, although other distortions could appear, such as reductions in the supply of workers due to the minimum guarantees offered.

It would also be necessary to assess whether national savings would increase: it is expected that they would increase if, when the debt of the PAYG system is made explicit, public expenditure is reduced or taxes increased, in which case the measure would be awarded a high mark on this criterion. Finally, with respect to social redistribution, the system of individual accounts would fulfill this criterion if additional resources are pumped into the system and directed to low income workers, or if redistributive fiscal instruments are used. However, it must not be forgotten that high charges for pensions management may reduce that redistributive effect.

One thing that must be borne in mind during the assessments is that the a priori theoretical considerations of the possible impacts of the measures proposed are one matter (even though many times these are not conclusive without more information) and the real evidence of what is happening on the ground is quite another. That is, the role of the applied

research in providing information on the observed or measured effects of different policies is very important throughout this process. The experts' testimony would be crucial to the debate.

e. Broad discussion of the results

By assessing each of the measures, participants in the formal debate – that is, members of the commission that would recommend changes to the system – could fill in a form with marks and comments.

When combining the weights given to each evaluation criterion from step (b) with the marks assigned by criterion for each policy in step (d), an evaluator will be able to get an overall mark for each of the measures considered.

The final stage of the methodology must consist not only in getting the consolidated marks for all participants, but also in presenting the result sheets of all the individuals involved in the debate to propitiate the comparison of the criteria used in personal evaluations.

Once all the results have been exhibited the final hierarchization of the most appropriate policies for each country will still be difficult. However, the discussion process would have been carried out in such way that, in spite of the complications inherent to decision-making in any political process, it may be easier to reach a general agreement having ensured that all participants have the same points of reference, based on the technical considerations of social security, with well thought-out and organized social equity arguments.

Before concluding, it is important to recall that, under the definition proposed in chapter I, social security not only includes pensions or health systems, but also other programs such as social welfare and universal programs that, to some extent, ensure that families have a minimum income and that no one is excluded from the benefits granted.

In most countries of the American continent, the doorway to social security has been incorporation into the formal labor market and, as has been explained here, this door has been almost closed over the last few decades. It is therefore important to highlight two direct implications: first, that a very large population group of working age without social security has accumulated, and that even if high rates of economic growth were achieved from this moment onwards it would take at least 20 years for all of that segment of the population to be fully incorporated into the formal labor market; and, second, given the inability of social security to protect the poor population, many American countries have developed all manner of instruments, almost always partial and incomplete, that substitute it as a protection mechanism for the most needy but that, paradoxically, in fact may prevent or at least hinder the eventual incorporation of those families to social security as it is understood today (Levy, 2002).

In this sense, another challenge for American social security is to commit to the definition proposed here, and proceed in three senses: to separate incorporation into the social security system from participation in the formal labor market; to transform the programs to fight extreme poverty into social security modalities; and to maintain the incentives to personal effort to avoid converting integral problems of social security into 'poverty traps' (Levy 2002).

This will require the design of schemes that take into consideration the very different problems experienced in different strata of the social structure: those of extreme poverty; those of groups in informal labor without being poor; and those of individuals who have contributed throughout their entire lives to social security schemes that are, at times, on the verge of technical bankruptcy, with the consequent risk of losing justly-obtained benefits.

For those in extreme poverty, the concept of solidarity through social security must be urgently rescued; for the informal workers, it will be necessary to improve the perceived benefits of the schemes in order to achieve their voluntary affiliation to social security; and for the long time contributors to the traditional systems, there must be financial structures in place that guarantee that they will not lose the benefits earned with their contributions. The social security structure must be different in each case (Levy 2002a), but will be important to ensure that the schemes will never discourage human capital investment.

Only in this way will it be possible to extend social security coverage so that, by keeping its financial bases sound, it can fully achieve the solidarity precept on which the system was founded.

Of course, this is not to say that the traditional tasks of the insurance schemes have been fulfilled. At present, the benefits that have always been offered by social security are under a tremendous financial pressure, as it has been seen in this report. The actuarial valuations of the schemes must become public and their results understood and discussed by the population, legislative bodies and researches on these topics.

The developments set out in this paper clearly show that, if the information on the American social security is not made clear and the advantages and disadvantages of each one of the possible solutions to the financing problems debated at length, it will be not possible to solve these difficulties in time, and future generations will have to pay the costs of that inability: the raison d'être of social security must surely be that our children have a better life than our own.

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