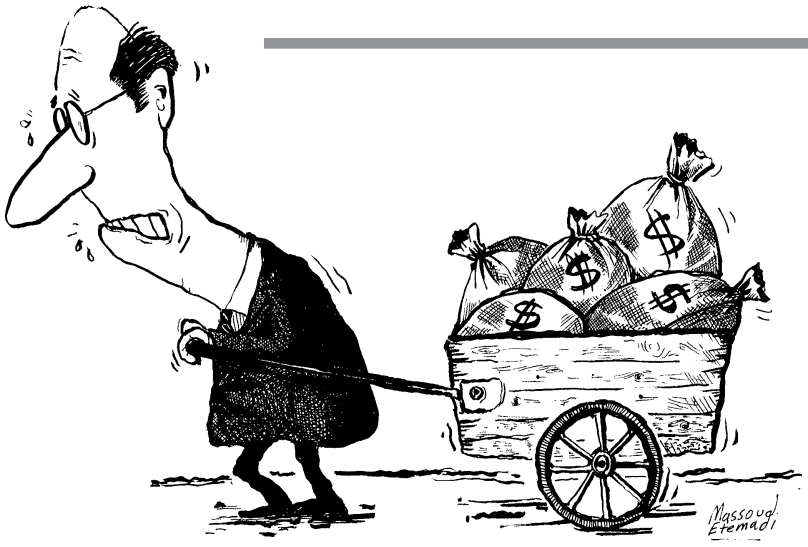

The Implicit Pension Debt

CHEIKH KANE AND ROBERT PALACIOS

Underfunded pension plans are a serious problem for industrial and developing countries alike. Because this implicit pension debt has important macroeconomic implications, governments need to tackle the problem as soon as possible.

IN CONTRAST to conventional public debt, both internal and external, public guarantees that imply large liabilities are not assessed and publicly reported by the authorities in most countries. These include the obligations implicit in guarantees of bank deposits, rural credit programs, home mortgages, and student loans. The difficulty of both measuring and monitoring these hidden liabilities has caused concern about their macroeconomic effects.

One of the largest of these liabilities is created by a government's promise to provide income support to some of its citizens during retirement. These pension obligations fall into two broad categories: guarantees of private pension schemes and direct promises to pay pensions to individuals.

Private pension guarantees

Private pension guarantees can take the form of insurance against the default or failure of private company pension funds, such as is provided by the US Pension Benefit Guarantee Corporation. They can also include partial or complete protection against rising prices, as is provided in Japan and the United Kingdom. The importance of these guarantees varies according to the size of the private pension sector. Coverage in company or occupational schemes ranges from practically zero in many developing countries to almost universal in such countries as the Netherlands and Switzerland.

Another kind of guarantee was developed in Chile, in the context of its pioneering system of mandatory private accounts. In Chile, the government commits itself to pay the difference between the accumulated balance in an individual's private account at the time of retirement and the amount that would provide an annuity equivalent to the minimum pension. The minimum pension has hovered around one-fourth of the average wage, and 20 years of contributions are required to qualify for the guarantee. In addition, the government assures that annuities purchased through the scheme will be paid even if the life insurance companies from which they were purchased go bankrupt. Like Chile's scheme, the reformed Argentine and Colombian schemes now guarantee that a minimum pension will be provided to all workers who contribute for a specified period to their privately managed, defined-contribution accounts.

Liabilities of public plans

Although private pension guarantees can lead to significant expenditures, the largest pension obligations are almost always those incurred by governments that make unfunded promises to pay defined-benefit pensions (see box). The concept of the implicit pension debt (IPD) recognizes that workers and pensioners have claims on current and future governments that are not unlike those of government bondholders. Public pension promises are often accorded contractual status in practice, if not in the legal sense, owing to the "insurance" terminology often used to describe the scheme. In fact, constitutional protections have been invoked in many countries to prevent governments from reducing the value of accrued pension wealth. In this regard, it could be argued that social insurance programs impose more severe fiscal constraints than other government programs do.

Liabilities have grown rapidly with the proliferation of publicly managed, defined-benefit pension plans throughout the twentieth century. Today they are found in more than 150 countries and probably cover more than one-half of the world's labor force. The extent of their coverage in individual countries ranges from a tiny fraction of the labor force to almost everyone and is strongly and positively correlated with the

Cheikh Kane,
a national of Senegal, is a Fiscal Economist in the Labor Market and Social Insurance Division of the World Bank's Poverty and Social Development Department.

Robert Palacios,
a US national, is a Pension Economist in the Country Operations Division of Country Department II of the World Bank's Europe and Central Asia Regional Office.

country's per capita income. (See Palacios, 1996.) Many countries have multiple schemes that cover specific groups, most commonly the military and civil servants.

Although interest in the IPD is growing as countries re-evaluate their pension schemes, estimates of its magnitude are included in only a few recent studies that have focused principally on several member countries of the Organization for Economic Cooperation and Development (OECD). (See van der Noord and Herd, 1993.) Studies of developing or former centrally planned economies' pension liabilities are rare and have generally been confined to Latin America, where they have tended to focus on the unique circumstances of particular pension reforms. (See, for example, Schmidt-Hebbel, 1995.) The existing empirical work does not use a consistent methodology, and almost no work comparing different countries has been done. The available estimates show that unfunded pension liabilities are large even in young, poor countries with limited pension coverage and that they can reach alarming proportions in the demographically advanced developing countries.

Timely, comparable estimates of the IPD can and should be produced. These will be important inputs into the public debate on pension reform and will provide important indicators that policymakers can use to compare the results of different reform proposals. If this liability is expressed as a stock, it can be readily compared with the more familiar domestic and foreign public debts. Finally, calculating the value of the IPD is a useful step when a country's authorities are considering the implications of ending a pay-as-you-go scheme. (For information on pension schemes, see "Averting the Old-Age Crisis," by Estelle James, *Finance & Development,* June 1995.)

Pension debt overhang

Some interesting analogies can be drawn between a country's external debt and its implicit pension debt. It is usually accepted that when it comes to servicing external debt, two aspects should be taken into account. The first concern is the immediate cash-flow requirement as measured by the country's debt-service ratio (that is, the ratio of scheduled debt-service payments for the current year to annual exports of goods and services). The second, and longer-term, concern is the extent of debt overhang, as measured by the ratio of the discounted present value of all future debt-service payments to annual exports of goods and services. Applying these concepts to pensions, one can measure cash-flow requirements by using the cost rate—that is, the ratio of pension expenditures to the portion of the wage bill covered by the pension system. Because most pension expenditures are financed through payroll taxes, the wage bill is the relevant tax base, just as exports are the relevant base for external debt servicing. A cost rate above the statutory contribution rate would indicate that pension expenses could not be met by contributions alone and therefore would require transfers from general revenue, a higher contribution rate, or a lower pension benefit. In short, the cost rate is to a country's pension system what the debt-service ratio is to its external debt.

The concept of external debt overhang can be applied to pensions. The pension debt overhang would be captured by the ratio of discounted future pension liabilities to the covered wage bill. This ratio is shown in columns (2) and (3) of the table, using two different discount rates to calculate net present value. The discount rate of 8 percent is added to allow direct comparison with the external debt overhang shown in column (5). Usually, an external debt-service ratio of 200 percent, calculated on a present-value basis with an 8 percent discount, indicates a severe external debt problem. For the countries in the table, except Peru and Venezuela, the pension debt overhang is well above 200 percent. These figures show in stark terms that pension liabilities deserve far more attention than they have received so far. Indeed, a case can be made for making the calculation of a country's implicit pension debt a requirement for any long-term assessment of its fiscal policy.

When pay-as-you-go pension schemes become unsustainable, either on their own

Measuring defined-benefit pension liabilities

Measuring defined-benefit pension obligations is a tricky business, and international accounting standards for the private sector do not concur on a single methodology. The complex parameters of the actuarial calculations can be and are manipulated toward various ends, with the result that "defined benefits" are really not very well defined. These ambiguities can frustrate workers covered by the plans, firms' shareholders, and government regulators. Most formulas involve multiplying a certain "accrual factor" by the number of years of a worker's service, and then multiplying the result by an average of that worker's wages toward the end of his or her career. If it is difficult to calculate the private pension wealth accumulated by an individual worker, it should be even more difficult to evaluate the liabilities of all individuals working at a particular firm and to compare these with the assets of the pension plan. There are, however, strong legal and economic incentives for firms to make these estimates. Firms need such information to make informed long-term business decisions, and these liabilities must be reported to regulators and tax authorities. In some countries, regulations even require plan members to be informed of their expected benefits.

For example, in the United States, the complex Employee Retirement Insurance Security Act (ERISA) of 1974 and subsequent amendments set minimum and maximum funding ratios along with rules about how to pay off the liabilities of terminated plans. The minimum funding requirements are supposed to protect the taxpayer from abuse of Pension Benefit Guarantee Corporation (PBGC) insurance while the maximum limit reduces possible tax expenditures that could arise as companies "overfund." It also protects workers, because the PBGC insurance covers only a portion of each worker's accrued pension rights when a pension scheme is terminated. In addition, since the mid-1980s, the Financial Accounting Standards Board has required that the unfunded liability, which is to be calculated in a specified manner, appear on a firm's balance sheet. In Germany and Japan, the measurement of companies' liabilities is necessary to satisfy criteria for tax-exempt "book reserves." In Japan, up to 40 percent of these liabilities are tax deductible.

Pension liabilities are financed using various "actuarial cost methods." This is the umbrella term used in the United States to describe "the method of allocating the cost of a defined benefit pension plan to each year of the plan's existence in an orderly fashion" (Archer, 1993, p. 123). Examples of the methods available include pay-as-you-go, terminal funding (where lump-sum contributions are made as the employee retires that are equivalent to the estimated present value of the annuity), and book reserve (where liabilities are entered on the balance sheet of the plan sponsor). The pay-as-you-go method is used by occupational pension schemes in France, while book-reserve schemes are prevalent in Germany and Japan. The actuarial cost method will influence the way the unfunded liability is financed over time, but not the value of the liability itself.

Selected countries: implicit pension debt during the early 1990s

(percent)

	IPD/GDP (discount rate = 4 percent)	IPD/Wage bill (discount rate = 4 percent)	IPD/Wage bill (discount rate = 8 percent)	External debt indicators Stock/ GNP	External debt indicators Present value/exports
	(1)	(2)	(3)	(4)	(5)
Latin America					
Uruguay	214	959	713	59	287
Brazil	187	591	390	28	300
Peru	37	174	113	63	436
(recognition bonds)	(3)	(15)	(7)		
Venezuela	30	303	199	65	195
Africa					
Cameroon	44	410	318	65	253
Senegal	27	467	324	64	161
Asia					
China	63	414	295	19	76
Europe					
Croatia	350	739	486	...	...
Hungary	213	745	549	67	186
Ukraine	141	779	220	2	7
Turkey	72	592	388	51	170

Sources: Authors' estimates for implicit pension debts (IPDs); World Bank, *World Debt Tables* (1994–95) for external debt indicators.

Note: The IPD estimates in this table are based on data for different years in the early 1990s. The IPD calculation is based on a termination liability concept that measures the value, under certain assumptions, of the accrued pension wealth of contributors and pensioners at a given point in time. In contrast, some other studies calculate the present value of all future pension spending assuming that the scheme continues indefinitely. The present value of debt-service payments is based on a discount rate of 8 percent. For a detailed explanation, see Cheikh Kane and Robert Palacios, "The Implicit Pension Debt: Concepts and Measurement," forthcoming in the World Bank's Discussion Paper series (Washington).

...: Data not available.

or when the IPD is considered with other public debt, governments must seriously consider reducing the IPD. They can do this by raising the retirement age and reducing the statutory value of the pension as a proportion of the worker's wage (the replacement rate). In Ukraine, for instance, equalizing the retirement age at 65 (from the current levels of 60 for men and 55 for women) would reduce the pension debt overhang by about 23 percent. By comparison, under the Toronto terms for repayment of bilateral nonconcessional loans, low-income developing countries were granted an average reduction of their external debt, in present-value terms, of about 20 percent of their nonconcessional debts. Correcting the imbalances of pension systems thus might very well bring more debt relief than a typical debt-reduction scheme.

Don't ignore the IPD

The IPD is a fiscal burden that cannot be ignored in low- and middle-income countries, especially those whose economies used to be centrally planned, or anywhere else for that matter. In addition to the long-term balance of the pension scheme, the IPD measures intergenerational transfers of massive proportions. Changing the parameters of a country's pension system can help, but a more important objective would be to move away from pension schemes that entail large burdens that get heavier as populations become older. This can be achieved by moving toward fully funded, defined-contribution schemes.

Standardized IPD estimates would add an element of transparency to pay-as-you-go pension financing and provide a more accurate indicator of long-term fiscal commitments than estimates of implicit government debt alone. Once an accepted methodology for calculating the IPD is designed and applied, it can be compared across countries and over time, and viewed in relation to national income and the wage bill. Such calculations would also provide international lending institutions and governments with an objective indicator they could use to measure the impact of such policies as increasing the retirement age or revising the benefit formula. Perhaps policies expanding pension eligibility or increasing pension benefits in many countries over the last few decades would have been reconsidered had the impacts of these measures been shown using a widely understood indicator. An IPD indicator might also provide useful input into policy debates in India and other countries that are now beginning to make unfunded pension promises to their citizens. Measuring the IPD is also an important means of encouraging the spread of comprehensive pension reforms. Ironically, current pension accounting systems in many countries penalize, to some extent, reformers who make the IPD explicit by ignoring the true improvement in their long-term fiscal positions that can result from pension reform.

Much research has taken the perspective of pension plan participants and looked at the possible impacts of pension wealth, both public and private, on saving rates and individual saving decisions. Feldstein and others have also examined the relationships between unfunded pension liabilities in the private sector and stock market prices on the assumption that share prices should reflect these liabilities if the market recognizes their existence. Future research may look at unfunded pension liabilities of governments in a similar way to see to what extent pension debt influences their cost of borrowing. To the extent that such a cost exists, this would reinforce the case for pension reform aimed at reducing the size of the pension debt. In the meantime, the implicit pension debt continues to grow as pay-as-you-go schemes expand and the world continues to undergo demographic transition. F&D

This article is based on a longer paper by the authors, "The Implicit Pension Debt: Concepts and Measurement," which is to be published in 1996 in the World Bank's Discussion Paper series.

Suggestions for further reading:

Michael Archer, 1993, "Minimum Funding Requirement," in ERISA: A Comprehensive Guide, *ed. by Martin Wald and David Kenty (New York: John Wiley).*

Martin Feldstein and S. Seligman, 1981, "Pension Funding, Share Price and National Saving," Journal of Finance, *Vol. 36 (September), pp. 802–24.*

Robert Palacios, 1996, International Patterns of Pension Coverage and Expenditures, *forthcoming Working Paper (Washington: World Bank).*

Klaus Schmidt-Hebbel, 1995, Colombia's Pension Reform: Fiscal and Macroeconomic Effects, *World Bank Discussion Paper No. 314 (Washington: World Bank).*

Paul van der Noord and Richard Herd, 1993, "Pension Liabilities in the Seven Major Economies," OECD Working Paper No. 1142 (Paris).