THE PENSION SYSTEM OF CUBA: THE CURRENT SITUATION AND IMPLICATIONS OF INTERNATIONAL PENSION REFORM EXPERIENCES FOR ADDRESSING CUBA'S PROBLEMS

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Systems of financial support for old people are experiencing serious financial difficulties worldwide and the old-age, disability, and survivors' pension system of Cuba (the pension system from now on) is no exception to this trend. The pension system of Cuba has been extensively discussed in the literature by Mesa-Lago (see below) and it has also been analyzed in the 1994 and 1995 ASCE conferences by Buttari; Alonso, Donate-Armada and Lago; and Donate-Armada.[2] The objective of this paper is to analyze the current situation of Cuba's pension system; to review the proposals that have been advanced in the literature in recent years to strengthen the finances of pension systems throughout the world; to assess the experience of transition economies in reforming their pension systems; and to draw preliminary policy recommendations on how to reform the Cuban pension system.

The first section of the paper presents the main characteristics of Cuba's pension system: how it has evolved over the years, its coverage, the level of benefits, sources of financing, and the financial problems experienced in recent years. The second section reviews the recent literature regarding pension economics and reform proposals to address pension system problems, while the third reports on the pension reform experience of transition economies. The fourth section presents the paper's conclusions about possible reform initiatives for the Cuban pension system.

THE OLD-AGE, DISABILITY, AND SURVIVORS' PENSION SYSTEM OF CUBA

Cuba was one of the first countries to introduce a pension scheme (in the 1920s) and on the eve of the Cuban revolution in 1958 the country had one of the most developed pension systems among countries with similar levels of income.[3] However, there was no

1. The views expressed here of the author's and do not necessarily represent the official views of the International Monetary Fund. The author would like to thank Philip Gerson for useful comments and Jorge Pérez-Lopez for providing reference materials.

2. See Juan Buttari, "The Labor Market and Retirement Pensions in Cuba During the Transition: Reflection on the Social Safety Net Experience of Former Socialist Economies"; J. Alonso, R. Donate-Armada, A. Lago, "A First Approximation Design of the Social Safety Net for a Democratic Cuba"; and Donate-Armada, "Cuban Social Security: A Preliminary Actuarial Analysis of Law 324 of Social Security," all in *Cuba in Transition—Volume 4* (Washington: Association for the Study of the Cuban Economy, 1994). See also R. Donate-Armada, "Preliminary Analysis of Retirement Programs for Personnel in the Ministry of the Armed Forces and Ministry of Interior of the Republic of Cuba," in *Cuba in Transition—Volume 5* (Washington: Association for the Study of the Cuban Economy, 1995).

3. This discussion of the pension system in Cuba owes a great deal to the writings of Professor Carmelo Mesa-Lago. For a more wide-ranging discussion of the social security system of Cuba than contained in this section, see Carmelo Mesa-Lago, "La seguridad social y la pobreza en Cuba," in *La Seguridad Social en America Latina: Seis Experiencias Diferentes* (Buenos Aires/Alemania: Konrad-Adenauer-Stiftung-CIEDLA, 1996).

general pension program and pension coverage was fragmented among 52 autonomous programs that only covered certain groups in urban areas. Each of the programs had its own regulations and financing and there was no coordination among the programs. According to Mesa-Lago, the coverage of the pension programs totaled 55 to 63 percent of the economically active population (the second or third highest coverage in Latin America), but excluded the poorest segments of the population such as rural workers, the self-employed, domestic servants, and the unemployed.[4]

The revolutionary government of Cuba carried out a number of important reforms in the pension field. By 1962 a process of unifying the benefits and contribution rates of existing programs had been completed. A 1963 law widened the coverage of the pension system to all the salaried labor force and made the financing of the system a direct responsibility of the government. Between 1964 and 1983 the coverage was made pretty much universal as other groups of workers were incorporated into the pension program: the self-employed, small entrepreneurs, members of agricultural cooperatives, and small farmers that gave up the titles of their lands to the state. The armed forces and members of the internal security apparatus of the state were the only groups that were outside the general program, enjoying more generous pension benefits.

The retirement age in Cuba is currently 55 years for women and 60 years for men with 25 years of employment (Box 1). If the last 12 years of employment (or 75 percent of the total work period) is in dangerous or arduous work, the retirement age becomes 55 years for men and 50 years for women. There is a reduced pension (at 65 years for men and 60 years for women) with 15 years of employment. The retirement age in Cuba is lower than in most countries in Latin America (Table 1) which, combined with a higher life expectancy than in most Latin American countries, results in longer retirement periods.[5] The retirement pension is equivalent to 50 percent of average earnings during the highest five of last ten years of employment (the portion of earnings above 3,000 pesos a year is reduced by half for purposes of this calculation), plus 1 percent of earnings for each year of employment beyond 25 years. Pensions increase between 1.5 percent to 4 percent for each year of delayed retirement between the ages of 60 and 65 for men and between the ages 55 and 60 for women and 1 percent a year thereafter. The maximum pension is 90 percent of average earnings. The pensions are not indexed. Members of the armed forces and the internal security personnel have a privileged system. They can retire with 25 years of service, there is no minimum age requirement, and a more generous average salary base is used to calculate pensions. On the other side of the spectrum, the self-employed have a less generous pension system.

Cuba's pension system is a defined-benefit, pay-as-you-go system (PAYG). Employers (i.e., the government, public enterprises, and some limited number of private enterprises) currently pay 14 percent of the wage bill to finance pension benefits. This is significantly lower than what was charged in other centrally planned countries in the early 1990s at the beginning of their transition period. Employees do not have to pay, while the self-employed pay a tax equivalent to 10 percent of their earnings. Given that almost all of the economically active population is employed by the state, in principle there should not be a serious problem of tax evasion. The central government covers the cash deficit of the pension system and the pension tax payments are part of the general tax revenues of the central government.

Cuba's budgetary figures from 1989 to 1997 show the dire financial situation of the pension system. Social security expenditure rose from 1,094 million pesos (equivalent to 5.3 percent of GDP) in 1989 to 1,707 million pesos (6.7 percent of GDP) in 1997.[6]

4. Mesa-Lago, "La Seguridad Social y la Pobreza," pp. 52-53.

5. Mesa-Lago, "La Seguridad Social y la Pobreza." Cuba's retirement age, on the other hand, is similar to that of the Baltic and former Soviet Union republics (Table 2).

Box 1. Cuba: Old-Age, Disability, and Survivors' Pension Program

First Laws

Numerous laws and decrees established separate pension systems for over 50 different occupations; superseded and unified by 1963 law. Self-employed, liberal professions, charcoal makers, and members of fishery cooperatives brought into consolidated system in 1964.

Current law

1979

Type of program: Social insurance system.

Coverage

All wage earners.

Special system for members of armed forces, Interior Ministry, self-employed, artists, and agricultural cooperatives.

Source of Funds

Insured person: None. (10 percent of earnings if self-employed.)

Employer contributes an amount equivalent to: 14 percent of payroll.

Government: Makes up deficit and also contributes as employer. Above contributions also finance sickness and maternity and work-injury programs.

Qualifying Conditions

Old-age pension: Age 60 (men) or 55 (women) with 25 years of employment (55 and 50 if last 12 years or 75 percent of employment is dangerous or arduous work).

Reduced pension, age 65 (men) or 60 (women) with 15 years of employment.

Retirement unnecessary, but total current income cannot exceed former income. Not payable abroad.

Disability pension: Full pension, physical or mental inability to work. Partial pension, inability to perform usual work. Employed when incapacity occurs if under age 23. If age 23 or over, number of years of employment needed to qualify increases with age. Partial pension at age 28 or older, requires three years of employment.

Survivor pension: Deceased was employed or pensioner at death, or employed within six months thereof and for three-fourths of adult life.

Old-Age Benefits

Old-age pension: 50 percent of average earnings (that portion of earnings above 3,000 pesos a year is reduced by 50 percent) during highest 5 of last 10 years, plus 1 percent of earnings for each year of employment beyond 25 years (1.5 percent if dangerous or arduous work). Increments of 1.5 percent to 4 percent for each year between the ages 60 and 65 for men and between the ages 55 and 60 for women for each year of deferred pension, 1 percent a year thereafter.

Reduced pension, 40 percent of average earnings, plus 1 percent of earnings for each year of employment beyond 15 years.

Minimum pension varies depending on level of average earnings and number of years of employment.

Minimum pension: 59 pesos per month or 79 pesos per month or 80 percent of wages, depending on average level of earnings and number of years of employment.

Maximum: 90 percent of average earnings.

Permanent Disability Benefits

Disability pension: 40 percent of average earnings (that portion of earnings above 3,000 pesos a year is reduced by 50 percent) during highest 5 of last 10 years, plus 1 percent of earnings per year of employment beyond 15 years.

Minimum and maximum pensions: Same as old-age pension.

Partial disability: 30 percent to 50 percent (40 percent to 60 percent in case of work injury or occupational disease) of lost earnings depending on number of years of employment up to 25 years, increased 1 percent for each year of employment above 25 years. During rehabilitation, 70 percent of former earnings.

If unable to find employment, 50 percent of former earnings in first year, 25 percent thereafter.

Survivor Benefits

Survivor pension: If deceased was employed at the time of death, pension will be 100 percent of earnings the first month and 50 percent for the next two months; if deceased was receiving a pension, then 100 percent of pension of insured for three months. Thereafter, 70 percent, 85 percent, or 100 percent of pension of insured for 1, 2, or 3 or more dependent survivors, respectively (80 percent, 90 percent, or 100 percent if pension of insured is less than 60 pesos a month). Divided equally among eligible dependents. Eligible dependents: Widow or female that had permanent relationship and is single, needy widower or male that had permanent relationship and is single, age 60 or disabled, orphans under age 17 or disabled, and needy parents.

Maximum pension for working widow: 25 percent of survivor pension.

Nonworking widow under age 40 and without dependents receives full pension for two years.

Widows age 40 or above who are unemployed receive complete pension.

Administrative Organization

Ministry of Labor and Social Security, administration of program through its Social Security and Social Assistance Directorate. Municipal social security offices and work centers process applications. Pensions paid through the Popular Savings Bank.

Source: U.S. Social Security Administration, Office of Research, Evaluation, and Statistics, *Social Security Programs Throughout the World*—1997, Research Report No. 65 (August 1997).

Table 1. Selected Latin American Countries: Basic Features of Public Pension Systems

	GNP per Capita (US$,1996)	Coverage	Financing Source	Pension contribution rates (% of earnings): Insured: Wage or Salaried	Pension contribution rates (% of earnings): Insured: Self-employed	Pension contribution rates (% of earnings): Employer	Statutory Pensionable Age: Men	Statutory Pensionable Age: Women	Years of Services	Benefits
Middle income countries										
Argentina	8380	Employed and self-employed persons, except for military personnel	PT,GR	11	27	16	64	59	30	Basic universal benefit(PBU): 2.5 AMPO[a] plus 1% for every year of contribution exceeding 30, up to max. Of 45 years
Brazil	4400	Employed and self-employed persons; separate systems for public employees and military	PT,GR	8-10	20	20	65[b]	60[b]	30	70% of avg. earnings in last 3 years plus 1% of avg. earnings for each year of contrib. Up to 100% of avg. earnings; Minimum. : 100% of minimum wage; Maximum: 956.57 reais (as of April 1997)
Chile-New system	4860	All workers; voluntary coverage for self-employed	PT,GR	13	13	0	65	60	20	Insured's contributions plus accrued interest; Minimum pension guaranteed by government
Uruguay	5760	Employed and self-employed persons; separate systems for bank employees, police, and armed forces	PT,GR	15-16		12.5-15	60	56[c]	35	50% of avg. earnings in last ten years; (822 new pesos/month, as of 1997); Maximum: 6425 new pesos/month (as of 1997)
Lower middle income countries										
Cuba	[d]	All wage earners; special systems for armed forces, self-employed, artists, and agricultural cooperatives.	PT,GR	0	10	14	60[e]	55[e]	25	50% of average earnings during highest 5 of last 10 years; Minimum: depending on avg. level of earnings, 59 pesos/month or 79 pesos/ month or 80% of wage; Maximum: 90% of average earnings
Costa Rica	2640	All workers; voluntary coverage for self-employed	PT,GR	2.5	4.5-7.25	4.75	61-11/12	59-11/12	38-10/12	60% of avg. earnings on highest 48 monthly wage during last 5 years; Minimum: 21000 colones/month; Maximum: 226056 colones/month
Bolivia-New system	830	All workers; voluntary coverage for self-employed	PT,GR	12.5	12.5	0	65	60		Contributions plus accrued interest.
Lower income countries										
Honduras	660	Employed persons, excluding domestic, casual, and agricultural workers (except those employed by employers with more than 10 permanent employees); coverage being extended gradually to different areas.	PT,GR	1		2	65	60	15	40% of basic monthly earnings, plus increment of 1% of earnings for each 12 months of contrib. Beyond 60 months; Minimum pension: 50% of earnings; Maximum pension: 80% of earnings
Nicaragua	380	All workers (excluding domestic workers); voluntary coverage for self-employed; special system for miners, indigents and those who have performed services for the country	PT, GR	1.75		3.5	60[f]	60[f]	15	40% of avg. earnings during last 5,4,or 3 years plus 1.365% for each 50 weeks of contributions; Minimum : 66-2/3% min. salary plus family allowances; Maximum: 80% of earnings, if more than 2 times the min. salary

Source: Sources: World Bank, *World Bank Atlas,* 1998; and U.S. Social Security Administration, *Social Security Programs Throughout the World-1997.*

Notes: Financing Source, PT indicates Payroll tax, GR indicates General revenues.

a. AMPO is the average mandatory provisional contribution, determined by dividing the total employee's contributions by the total number of contributors. As of April 1997, the AMPO was 80.

b. Refers to urban employees. For rural employees 60(men) and 55(women).

c. Age for women gradually increased to 60 by year 2003.

d. Estimated to be lower middle income. Based on World Bank Atlas, the lower middle income range is US $766-US $3035.

e. Reduced pension, age 65 for men, age 60 for women with 15 years of services.

f. Age 55 for miners, teachers and the physically or mentally impaired.

Table 2. Selected BRO Countries: Basic Features of Public Pension Systems

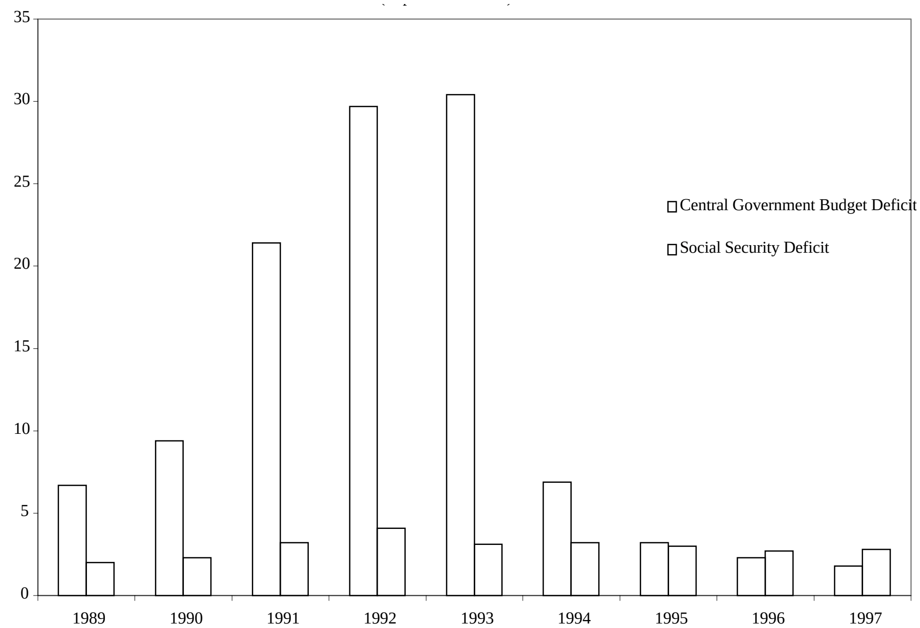
	GNP per Capita (US$,1996)	Coverage	Financing Source	Pension contribution rates (% of earnings)			Statutory Pensionable Age		Years of Services	Benefits
				Insured						
				Wage or Salaried	Self-employed	Employer	Men	Women		
Armenia	630	All employees	PT	1		35	60	55	25(M),20(F)	60% of wage base[a]
Belarus	2070	All employed permanent residents	PT,GR	1		4.7-35	60	55	25(M),20(F)	55% of wage base[b]; Minimum: 100% minimum wage; Maximum: 75% of wage base
Estonia	3080	residents	PT,GR	0	20	20	60[c]	55[c]	25(M),20(F)	The basic pension sum is equal to national pension; National pension set by legislature and adjusted by CPI, national pension is 410 kroons as of April 1995
Georgia	850	All employed residents; special systems for aged, disabled, and survivors not eligible for employment-related social benefits	PT,GR	1		37	60	55	25(M),20(F)	55% of average earnings[d]; Minimum: 100% of minimum wage
Kazakhstan	1350	All employed residents	PT,GR	1		30	60-1/2	55-1/2	25(M),20(F)	60% of earnings; Minimum: 100% of social minimum established yearly in the Republic budget , 550 tenge as of January 1997
Kyrgyz Republic	550	All employees, special systems for aged disabled, and survivors not eligible for employment-related social benefits	PT, GR	2.5		34	60	55	25(M),20(F)	55% of average monthly wage[e] ; Min. 100% of min. wage(75 soms as of January 1997)
Russian Federation	2410	Employed citizens, self-employed, and independent farmers	PT,GR	1	28	28	60	55	25(M),20(F)	55% of wage base[f]; Minimum: 78620 rubles as of March 1997; Maximum: 75% of wage base, not to exceed 3 times the minimum pension
Turkmenistan	940	All employees, special systems for aged disabled, and survivors not eligible for employment-related social benefit	PT,GR	1		37	60	55	25(M),20(F)	55% of assessed wage[g]; Minimum: 100% of minimum wage, minimum wage:1000 manats/month as of December 1994); Maximum: 10 times the minimum wage
Ukraine	1200	All employees	PT	1		37	60	55	25(M),20(F)	55% of wage base[f] ; Minimum: 200% of min. wage, (minimum wage: 15 hryvnias/ month as of January 1997); Maximum: 75 % of wage base

Source: World Bank, *World Bank Atlas,* 1998; and U.S. Social Security Administration, *Social Security Programs Throughout the World-1997.*

Note: Financing source, PT indicates Payroll tax, GR indicates General revenues.

a. Gross average earnings of any 5 consecutive years in last 15 years of covered employed.
b. Wage base equals percentage of gross earnings in any 5 consecutive years in last 15 years.
c. As of Jan. 1994, pensionable age has been rising by 6 months per year until reach 65 for men and 60 for women in 2007.
d. Average wage in last year or last 5 years, whichever is higher.
e. Average wage of any 60 consecutive months in last 15 years.
f. Wage base equals gross average earnings in last 2 years or best 5 consecutive years of covered employed.
g. Assessed wage equals percentage of gross average earnings in best 5 consecutive years in last 15 years.

Chart 1. Cuba: Central Government Budget Deficit and Social Security Deficit ***(in percent of GPD)***



Source: *CEPAL, La economía cubana:* Reformas extructurales y desempeño de los noventa.

Old-age and survivors' pensions account for over 80 percent of the payments, and disability payments for the rest. At the same time, social security revenues increased from 676 million pesos in 1989 to 985 million pesos. As a result, the cash deficit of the pension system grew from 417 million pesos in 1989 to 712 million pesos in 1997 (equivalent to 2.7 percent of GDP) (Chart 1). In the latter year, the cash deficit of the pension system was greater than the overall budget deficit of 470 million pesos. The large estimated deficit for 1997 is rather surprising because if the contribution rate is 14 percent and the dependency ratio is 1:4 (see below), then in principle, the system should be able to provide an income replacement rate of 56 percent (more than the pension for a person retiring after 25 years). It is true that the replacement rate of the maximum pension is 90 percent and that about 20 percent of the contributions go to pay disability pensions, but still the deficit of 712 million pesos appears to be on the high side unless most of the pensions are closer to the 90 percent replacement rate.

An actuarial evaluation of the pension system also confirms the lack of viability of the pension system under the current rules. Donate-Armada has calculated that contribution rates from current active participants of the pension system need to be increased sharply to finance both existing old-age retirement pensions and their future old-age pensions.[7] With reasonable assumptions about interest rates, salary increases, and the rate of inflation, combined with the assumption that the pension rules will not change, he estimated that the contribution rate would have to increase in 1995 from 10 percent (the rate prevailing at that time) to 36 percent. The contribution rate was calculated as the ratio of the actuarial present value of future old-age pension payments to the actuarial present value of salaries of the current participants

6. Official figures reported in CEPAL, *La economía cubana: Reformas estructurales y desempeño en los noventa* (México: Fondo de Cultura Económica, 1997), Tables A-7 and A-8.

7. Donate-Armada, "Cuban Social Security."

of the system. A contribution rate of 20 percent was needed to pay the current pensions with the additional 16 percent being required to accumulate a fund to pay future pensions of current active participants. Based on 1997 data, a contribution rate of 24 per cent (assuming no decline in compliance) would be required simply to eliminate the cash-flow deficit of the system, without accumulating any prefunding.

Another factor that will cause the financial situation of the pension system to worsen is the aging of the population. Mesa-Lago has estimated that the population of retirement age will reach 1.82 million in 2000 and 2.34 million in 2010, compared with 1.45 million in 1990 and 0.68 million in 1960.[8] As a result, the ratio of economically active to economically inactive of the working age population would drop from 4:1 to 3:1. Unless reforms are adopted, these changes will undoubtedly worsen the financial situation of the pension system.

At the same time, it has to be noted that the value of pensions in peso terms is low and that their purchasing power has declined drastically in the 1990s with the collapse of the economy after the elimination of the Soviet subsidy. According to the CEPAL study, the average salary in Cuba was 188 pesos in 1989 and 196 pesos in 1995.[9] Using these salary figures as the base, it can be estimated that the monthly pension for a pensioner after 25 years of service was 94 pesos in 1989 and 98 pesos in 1995 (although these are likely to be low estimates of the pension because the wage profile slopes upward with age), while the maximum monthly pensions were 169 pesos in 1989 and 176 pesos in 1995. In the past, pension income was combined with the availability of rationed foodstuffs and other essential items to provide pensioners with a minimum standard of living (albeit at a fairly low level). As the economic crisis has worsened during the decade, goods have become increasingly less available through the official rationing channels, and increasingly in the informal market for those who have U.S. dollars. Anecdotal information indicates that prices of goods that are available for sale in pesos have increased sharply, although it is not possible to know with precision because no price statistics are available. For example, Mesa-Lago reports that a typical meal for three persons would have cost 58 pesos in February 1995, or more than half of the average monthly pension in that year.[10]

In these circumstances, as suggested by Mesa-Lago, one can get an idea of the purchasing power of the pensions by converting them to U.S. dollars and comparing them to U.S. dollar prices in the informal market. For the end of 1995, CEPAL reports a black market exchange rate of 25 pesos per U.S. dollar and 7 pesos per U.S. dollar at the end of 1990. Using these exchange rates, the maximum pension declined from US$24 in 1989 to US$7 in 1995.[11] These are very low levels of income compared to reported dollar prices of basic necessities in Cuba, confirming the sad reality that the pension levels cannot provide pensioners with a minimum standard of living.

To sum up, the existing pension system in Cuba fails to provide a minimum level of income for pensioners to buy the basic necessities of life. It is true that medical care, which is one of the largest expenditures categories for the aged is provided essentially free of charge (although the availability and quality of health care also has deteriorated sharply in recent years) and housing is provided at very low rents. Nevertheless, it is clear that the pension system is a meager system, which is already running large cash deficits and is building a large contingent liability for the government. The next sections discuss key issues in pension economics, proposals that have been advanced to reform pension systems, and the experience of the former centrally planned economies in addressing their pension problems.

8. Mesa-Lago, "La Seguridad Social y la Pobreza," Table 8.

9. CEPAL, *La economía cubana*, Table A-31.

10. Mesa-Lago, "La Seguridad Social y la Pobreza," p. 91.

11. CEPAL, *La economía cubana*, Table A-14.

PENSION ECONOMICS AND REFORM PROPOSALS TO ADDRESS PENSION SYSTEM PROBLEMS

Pension System Experiences Throughout the World

Income insecurity in old age is a worldwide problem. In industrialized and semi-industrialized countries, this has manifested itself in the difficult financial situation that pension systems have faced in recent years and in the rising amount of resources spent on pensions as the populations grow old, which have been documented in a study by the World Bank.[12] In poor and less urban societies of Africa and Asia, where the old make up a smaller part of the population and are cared for by extended family arrangements, mutual aid societies, and informal mechanisms, it tended to be lesser of a problem for a while. However, as urbanization and mobility increased in these countries the extended family ties and informal systems started feeling the strain. This strain has been felt most in countries where the proportion of the old has been growing rapidly as a result of declining fertility and improved medical care. There is an urgency in these countries to set up formal systems of income maintenance, while helping to maintain informal arrangements of protecting the poor.

Latin America and the former socialist countries of Europe and Central Asia have been forced to reform formal pension systems that had been in operation for a long time. Liberal pension benefits, including early retirement provisions, required high contribution rates which, in turn, have led to large contribution evasion and other distortions in the labor markets. The labor market distortions reduced productivity, pushing contribution rates and evasion still higher, even as limited long-term saving and capital accumulation further dampened economic growth. These countries have not had any alternative but to cut the benefits of their pension programs.

The industrialized countries members of the Organization for Economic Cooperation and Development (OECD) have faced similar problems, as their population has aged and productivity stagnated. These countries experienced several decades of prosperity beginning in the 1960s and large pensions were paid to the old, with the result that poverty declined more rapidly among the older segments of the population. More recently, payroll taxes have risen and will likely need to rise more and benefits fall. The increase in payroll taxes tends to discourage labor supply and productive capital formation, contributing to contain economic growth. As a World Bank study notes, these countries are moving to systems that combine publicly managed pension plans designed to meet basic needs with privately managed occupational pension plans or personal saving accounts to satisfy the higher demand for pension income of middle- and upper-income groups.[13]

Reasons for Government Involvement in Pension Systems

In addressing the problems of providing a retirement income for the old, it is generally recognized that governments need to play an important role, including in countries that until now have relied on informal arrangements to provide old-age security. Governments need to take actions to provide old-age security because people can be shortsighted and may not save enough for their old age, with the result that they could become a burden on the rest of society.

In many countries, there may also be inadequate saving instruments because capital markets are underdeveloped and macroeconomic conditions unstable, justifying government intervention. Insurance market failures are other problems that arise, particularly in poor countries—adverse selection, moral hazard, and correlation among individuals make insurance against many risks (such as the risks of longevity and disability) unavailable. Another important problem is that there might be information gaps regarding the solvency of insurance and other type of financial institutions, or about the relative profitability of alternative types of investment which might result that se-

12. See World Bank, *Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth* (1994).

13. World Bank, *Averting the Old Age Crisis.*

rious mistakes are only discovered late in life with dire consequences.

Objectives of Pension Systems

In evaluating alternative policy approaches to address pension system problems, the World Bank study mentioned above notes that pension systems should be both an instrument of growth and social safety nets. The World Bank study stressed that pension systems should help the old by:

- Facilitating people's efforts to shift some of their income from their active working years to old age, by saving or other means;
- Redistributing additional income to the old who are lifetime poor, but avoiding perverse intra generational redistributions and unintended inter-generational redistributions;
- Providing insurance against the many risks to which the old are especially vulnerable;

and help the broader economy by:

- Minimizing hidden costs that impede growth—such as reduced employment and saving, excessive fiscal and administrative burdens, and misallocated capital;
- Being sustainable in the long term by taking into account expected changes in economic and demographic changes;
- Being transparent, to allow decisions to be based on informed choices and insulated from political manipulations that can lead to poor economic outcomes.[14]

Justification for PAYG Systems and Criticisms

Most countries have tried to fulfill the saving, redistribution, and insurance objectives through a publicly managed scheme that pays an earnings-related defined benefit and is financed out of payroll taxes on a pay-as-you-go basis, similar to the Cuban system. In these schemes, some of the contributions of the richer people go to help pay the pensions of the poorer. The system forces the workers to save part of their income and they are protected against disability and other risks.

The combination of functions in one program has been defended on grounds that it keeps administrative costs low through economies of scale and builds political support for the program. However, experience has shown that governments tend to succumb to the temptation of providing too generous benefits to pensioners at the beginning of these programs. Later, governments try to cover the costs with increases in contributions, which result in tax evasion problems and increases in the size of labor market distortions mentioned above, particularly in developing countries that have less efficient tax administration.

The fact that older workers tend to retire earlier than they would do if they had less generous benefits also complicates the situation. Eventually, the costs in terms of higher taxes and their distortionary effects become too large to bear by the countries following these policies. In some developing countries, partially funded defined benefit systems also have a record of misuse. In these countries, the pension funds have been required to invest solely in public securities, which yield very low returns. The availability of this inexpensive financing have led governments to borrow and spend more than they would have otherwise in unproductive ways. This practice results in a hidden tax on labor and deprive the private sector of access to funds and thereby inhibit economic growth.

Moreover, it has been argued that PAYG systems also miss an opportunity for capital market development. In a PAYG system, when the first old generation gets pensions that exceed their savings, national consumption may rise and savings decline. The next generations pay their social security tax instead of saving for their own old age so this loss in saving is never made up. In contrast, a mandatory funded plan could increase capital accumulation if it increases long-term saving beyond the voluntary point and requires that these funds be transferred to financial institutions. This, in turn, stimulates a demand for

14. World Bank, *Averting the Old Age Crisis*, pp. 9-10.

financial instruments and eventually the increased availability of these instruments.

In industrial countries, PAYG systems have tended to be regressive contrary to the original intentions. This has been due in part to the way that the systems have been designed, but also because workers with higher income live longer, have a rising age income profile, and join the labor force later, thus having a shorter contributory period. Moreover, there is no equitable distribution of benefits and costs across generations: while the first generation of beneficiaries typically receives considerably more than they contributed, future retired generations typically face lower rates of return on their contributions, particularly in the case of aging populations.[15] The systems have also promoted intra-generational inequities, since different rates of return may apply for contributors within a given population cohort, owing to different life expectancies (e.g., women tend to live longer).

The Multipillar Approach to Pension Reform

To address these problems, the World Bank has proposed a shift from a single pillar approach—characteristic of a PAYG system—to a multipillar approach to provide old-age income security.[16]

A mandatory, publicly-managed first pillar would have the limited object of alleviating old-age poverty and coinsuring against a multitude of risks. With the backing of the government's power of taxation, this first pillar would have the unique ability to pay benefits to people growing old shortly after the plan is introduced, to redistribute income toward the poor, and to coinsure against spells of low investment returns, recession, inflation, and market failures. This pillar could take a number of forms: a universal or employment-related flat benefit, a minimum pension, or means-tested benefits. A main objective of this pillar would be to try to reduce the required contribution rate substantially and, therefore, tax evasion and misallocation, as well as pressures to overspend. It should also prevent perverse intra- and inter-generational transfers. Benefits should be set at a low level to allow other pillars to grow.

A second mandatory pillar would be fully funded and privately managed, linking benefits actuarially to costs and contributions, and its main purpose would be to carry out the income smoothing or saving function for all income groups within the population. The successful establishment of this pillar (and of the third) requires the existence of a banking system and of, at least, a rudimentary stock and bond market with the capacity to develop further in response to demand from pension funds. Full funding of this pillar is expected to boost capital accumulation and financial market development. A successful second pillar should encourage economic growth that would in turn help finance the first pillar, but it will also reduce the demand for it.

The third pillar would take the form of voluntary occupational or personal saving plans which would provide additional protection for people who want more income and insurance in their old age. Under the multipillar proposal the redistribution and saving functions are separated and the insurance function would be provided jointly by all three pillars.[17]

Skepticism about Widening the Role of the Private Sector

On the other side of the reform literature of pension systems, there are a number of authors who argue that the problems of PAYG systems can be addressed by reforming some of the features causing the problems. Proposals have been made to increase the retirement age and introduce income means testing as a way of reducing benefits and improving the financial conditions of pension systems. This is the approach taken in the past in reforming the United States social security system and the pension systems

15. See Marta Castello Branco, *Pension Reform in the Baltics, Russia, and Other Countries in the Former Soviet Union*, IMF Working Paper 98/11 (February 1998).

16. World Bank, *Averting the Old Age Crisis*.

17. For a more thorough discussion of the choices to be made in establishing the three pillars, see World Bank, *Averting the Old Age Crisis*, pp.17-18.

of other countries. In recent literature, there is also the view that some of the benefits of the private funded pillars are overrated.[18]

Shifting from a defined-benefit PAYG system to mandatory defined-contribution schemes managed by the private sector as the dominant pension pillar could be criticized because these schemes could be subject to significant risks, limitations, and complications. Heller has noted that the purported advantages of defined-contribution schemes can be obtained only at the expense of higher underlying risks to the incomes of future pensioners. If policies are introduced to limit such risks, this may result in reinjecting the government into the financing of social insurance, thus raising questions as to the relative merits of defined-contribution over defined-benefit schemes or the desirability of private sector solutions.[19] Similarly, since defined-contribution schemes by themselves do not redistribute income intra-generationally or provide safety nets, income security measures need to be developed to complement a defined-contribution scheme. These will need to be financed and managed by the government which also raises the question whether it is not more efficient and cost effective to build such redistributional/safety net elements directly into the social insurance system, rather than make them a separate pillar. Hemming has pointed out that there is not a strong case for choosing funded public sector pension systems over PAYG systems because the justification that exists for funding pensions in the private sector (possible bankruptcy and the availability of tax advantages) do not carry over to the public sector.[20]

At the same time, the empirical evidence does not permit a generalization about the impact of the public pension system on saving. Replacing a PAYG defined-benefits public sector plan with a defined-contribution private sector plan as done in Chile may increase aggregate saving but, for this to happen, the levels of the contribution rates of the new plan and the means of financing the increase in the public sector deficit that characterizes the period of transition during which the old system is phased out are critically important. To maximize the impact of saving, the public sector deficit created as workers stop paying payroll taxes and start making contributions to the new system should be financed as much as possible through fiscal consolidation and the contribution rate to the new system should be as high as possible.[21] That being said, a fiscal consolidation and an increase in payroll tax rates would raise saving anyway, with or without a switch to a funded system.

Regarding the impact of public pension program on labor supply, public pension programs probably cause people to retire earlier than they would otherwise. But it has to be recognized this is one of the reasons they were created to begin with, and there is also some evidence that the possibility of retiring early increases the number of hours worked before retirement. Thompson argues that there is no evidence to suggest that how a plan is financed (whether pay-as-you-go or funded) will alter the degree of labor supply.[22]

PENSION REFORM IN COUNTRIES IN TRANSITION

It is interesting to review what has been happening to the pension systems in the transition economies because their pension systems and social spending policies were similar to those of Cuba before the demise of central planning. The public pension systems cur-

18. See Federal Reserve Bank of St. Louis' *Review* (March/April 1998) for a discussion of current proposals for reform the U.S. social security system which includes provisions for tightening of benefits and setting up individual retirement accounts.

19. Peter S. Heller, *Rethinking Public Pension Reform Initiatives*, IMF Working Paper 98/61 (April 1998).

20. Richard Hemming, *Should Public Pensions be Funded?*, IMF Working Paper 98/35 (March 1998). Hemming argues that a case could be made for the funding of public pension systems if it can be demonstrated that it results in greater inter-generational fairness, if it can better handle demographic and economic risks, if it can more clearly signal future pension costs, or if it is associated with higher saving.

21. G.A. Mackenzie, Philip Gerson, and Alfredo Cuevas, *Pension Regimes and Saving*, IMF Occasional Paper No. 153 (August 1997).

22. Lawrence Thompson, *Older and Wiser: The Economics of Public Pensions* (Washington: The Urban Institute Press, 1997).

Table 3. Public Pension Systems in Countries in Transition *(In percent)*

	System Dependency Ratio[a]			Average Replacement Rate[b]		
	1990	1993	1996	1990	1993	1996
Eastern European countries						
Bulgaria	55.0	80.0	74.4	42.8	40.2	31.4
Croatia	31.0	43.0	54.3	73.0	62.0	35.4
Czech Republic 3/	42.0	51.0	61.0	47.6	43.4	47.8
Hungary	47.0	66.0	76.9	49.7	47.3	41.4
Poland	40.0	53.0	61.3	59.0	76.8	61.3
Romania[c]	34.0	49.0	52.3	41.9	26.0	29.7
Slovak Republic	39.0	53.0	46.1	48.3	44.0	42.0
Baltics, Russia, and other countries of the former Soviet Union						
Armenia	33.8	43.7	44.1	44.6	30.7	24.3
Azerbaijan	38.8	42.9	41.6	42.3	21.2	29.2
Belarus	46.1	54.0	71.0	40.1	38.0	40.9
Estonia	45.3	47.9	55.9	...	—	29.4
Georgia	34.6	37.3	54.9	—	—	36.4
Kazakhstan	31.9	43.7	57.1	38.5	39.3	34.0
Kyrgyz Republic	34.6	38.0	34.0	44.8	38.4	48.5
Latvia	42.7	53.1	54.9	31.2	33.3	38.6
Lithuania	47.4	50.2	53.8	36.3	28.4	30.8
Moldova	34.6	46.9	50.2	38.6	32.1	40.1
Russia	44.9	52.4	57.0	38.0	24.5	28.4
Tajikistan	27.3	32.9	27.0	47.8	45.9	23.7
Turkmenistan	25.4	28.0	25.3	41.1	47.5	53.3
Ukraine	51.4	60.5	65.3	41.6	26.9	32.7
Uzbekistan	29.9	33.1	29.2	45.1	29.9	40.9
Major advanced economies[d]	—	39.2	—	—	—	37.5

Source: *The 1998 World Economic Outlook*; Andrew and Rashid, "The Financing of Pension Systems in Central and Eastern Europe;" Castello Branco, *Pension Reform in the Baltics, Russia, and Other Countries of the Former Soviet Union*; The Vienna Institute for Comparative Economic Studies; and IMF staff estimates.

a. Pensioners as a percent to the number of people employed.
b. The average pension in terms of the average wage.
c. The system dependency ratios for the Czech Republic and Romania reflect data for 1995.
d. Major advanced economies include the United States, Japan, Germany, France, Italy, the United Kingdom, and Canada; for the system dependency ratio, unweighted average of selected OECD countries.

rently in place in the Baltics, Russia, and other countries of the Former Soviet Union (BRO) and in Eastern Europe were introduced originally as contributory pension schemes with universal coverage based on PAYG financing.[23] Castello Branco notes that this scheme was part of a public welfare system designed to provide "cradle-to-grave" protection to the population, including a myriad of social protection arrangements, ranging from the provision of health and education to the delivery of subsidies, cash benefits (including pensions and various allowances) and benefits provided in kind (such as housing) as well as guaranteed employment. Under this system, pension benefits were only loosely linked to contributions, the same way wages were often unrelated to workers' productivity. As the budgetary situation deteriorated in these countries, guaranteed employment and direct subsidies to the population were virtually eliminated, and the provision of the social benefits promised under the old system became increasingly burdensome, especially in light of competing demands from other expenditures necessary to carry forward the transition process.

23. This section is based on Castello Branco, *Pension Reform in the Baltics, Russia and Other Countries of the Former Soviet Union*, and on Box 10 of the 1998 *World Economic Outlook* of the International Monetary Fund.

System dependency ratios — defined as the ratio of pensioners to working population — were already high at the beginning of the transition, and they increased further (Table 3) as employment fell, as the incidence of early retirement increased, and, in a few countries, as populations aged. Some central and eastern European countries have intentionally used early retirement and disability pensions as a safety net to prevent a sharp increase in unemployment, adding to the financial pressures. At the same time, financial weakness of enterprises, a rise in private and informal sector activities, and an inefficient collection system resulted in a decline in contributions.

Most BRO countries responded to the declining number of contributors and the weakening in tax compliance by initially reducing the generosity of the benefits. During the initial, high inflation, phase of the transition period, the lack of formal indexation mechanisms resulted in a significant erosion of the real value of pensions. Subsequently, the use of sporadic indexation and modifications in the benefit formula, in particular changing the way the initial pension was determined, flattened the pension benefit structure in most countries.[24] For example, the average replacement rates — defined as the average pension in terms of the average wage — fell by more than 10 percentage points in Albania, Croatia, and Romania in 1991-93 and benefit levels were also compressed in Russia. In some cases the benefit levels were reduced to just slightly above the poverty line, and in some instances below it. Pensioners in these countries seem to have survived through transfers provided by extended family arrangements, income from informal activities, and sales of personal assets. In these circumstances, Castello Branco points to the fact that these pension systems have become crude social safety nets, providing small amounts of benefits to a large section of the population. In the poorest countries, like Armenia and Georgia, the official safety nets have become largely irrelevant for household income. In recent years, with progress achieved in macroeconomic stabilization there have been attempts to increase the level of benefits but there have been insufficient funds to do this.

Despite the reduced benefits, pension funds began to run cash budget deficits. Moreover, most of these countries, except Albania and some countries in the Caucasus and Central Asia, face the prospect of aging populations which will add to the financial strains of the pension systems. To address the growing financial imbalances in the pension funds, contribution rates were raised significantly. Payroll taxes are now in excess of 30 percent of wages, and they were as high as 52 percent in Ukraine in 1996. However, the increase in contribution rates apparently has discouraged compliance in a significant way. At the same time during the transition period, arrears have accumulated both in contributions and in payments of pension benefits.

In addition to the short-term responses of compressing benefits (but not the number of beneficiaries), increasing contribution rates, and accumulating arrears, several BRO countries have adopted piecemeal reform measures to correct some of the distortions existing in their PAYG system. Notably, they have introduced amendments to the existing legislation to change the benefit structure and eligibility criteria, and made efforts to improve targeting of benefits and strengthen tax collection. A few countries (Armenia, Azerbaijan, Estonia, Kazakhstan, and Lithuania) have actually initiated the process of gradually increasing retirement ages, while in Georgia the retirement age was raised by five years in one go in February 1996. Some countries have reduced or eliminated benefits for working pensioners. BRO countries also are trying to improve the collection of contributions to the pension systems. To try to improve the disappointing collections of contribution rates, some countries (Armenia, Georgia, and Ukraine) have decided to gradually cut contribution rates in an attempt to increase compliance over time. Countries like Ukraine have taken steps to harmonize contribution rates by raising rates for some privileged categories, and others including Russia and Ukraine have

24. Castello Branco, *Pension Reform in the Baltics, Russia and Other Countries of the Former Soviet Union*, pp. 28-29.

attempted to broaden the tax base by including some previously untaxed nonwage income.

A number of countries are considering more systemic pension reforms and are in some cases preparing the introduction of private pension funds. Others like Kazakhstan, Latvia, Hungary, and Poland have taken steps to adopt a multipillar system as recommended by the World Bank. The Kazakh reform plan that became operational in January 1998 envisages a transition toward a new system, based on the Chilean model, in which the first pillar will play a minimal role. All current and new workers will immediately participate in the funded system of individual accounts. In Hungary, Latvia, and Poland, the first pillar retains a more important role and continues to provide benefits partially linked to contributions. These three countries are also taking a more gradual approach toward introducing the privately managed pillars and Hungary and Poland offer those currently working and within a certain age range the option to continue participation in the old system.

THE POSSIBLE REFORM OF THE CUBAN PENSION SYSTEM

The shock that the Cuban economy suffered from the elimination of the subsidies of the former Soviet Union in 1989, and the impact of the accumulation of economic distortions as a result of central planning, has had serious negative consequences on the economy and on the fiscal accounts. The discussion above shows that the finances of the pension system of Cuba were also negatively affected and that pensions had fallen to very low levels in U.S. dollar terms at a time when the economy became increasingly dollarized. As in the transition economies, reforming the pension system in Cuba is in many ways a more difficult task than in industrial and developing countries. The difficult situation of the public finances, the large competing expenditure needs, and the lack of financial markets and regulatory frameworks, create very serious constraints to reform. Politically and on ethical grounds, there is a need to provide a minimum protection to pensioners who may not live to enjoy the eventual benefits from the reform of the pension system and from the improvements in macroeconomic performance, but expect the government to honor their promise of an adequate pension.

To address the pension and other serious economic problems of Cuba, it is clear that a medium- to long-term macroeconomic program would need to be put in place with a strong emphasis in carrying out the needed structural reforms to eliminate the distortions and generate a strong supply response from the economy. Up to now, the adjustment to the economic shock of the 1990s has been essentially from the demand side, and it is imperative to increase economic growth to raise living standards and generate resources to reform the pension system.[25] With higher rates of growth in the future, the PAYG finances would improve significantly.

Concerning the reform of the pension system, Cuba is faced with the double problem that the system is already running a large cash deficit which is likely to increase over time as the population ages, while at the same time the pension system does not redistribute income in an adequate amount to old people who have been poor most of their lives and now face a dismal future at the current levels of pensions. Neither does the current system provide an adequate vehicle to save a share of income of the active population for their old age needs, or provide insurance against disability or protection to survivors. To come up with specific recommendations on how to reform the pension system, more comprehensive information would be needed about the state of public finances and about demographic trends in Cuba. In a country like Cuba, there are likely to be large amounts of off-budgetary transactions that would need to be brought into the budget before one can assess the real fiscal situation and how much leeway the government has in meeting its pension obligations.

25. See Lorenzo L. Pérez, "The Implications of Good Governance for the Reconstruction of Cuba," in *Cuba in Transition—Volume 7* (Washington: Association for the Study of the Cuban Economy, 1997), for reforms that need to be implemented to promote an economic recovery in Cuba.

At the outset of the reform of the Cuban pension system, it appears that there is little choice but to try to reform the existing PAYG system and implement piecemeal reforms to correct some of the most obvious distortions, as has been done by transition economies, as well as by industrial and developing countries. It is clear that the retirement age would need to be raised—preferably to 65 years old for both men and women, given that the latter group tends to have a longer life expectancy. Contribution rates will need to be increased, although it would be important to be mindful of the limits that exist before serious evasion problems arise; actuarial calculations will be a key input in determining by how much to increase retirement age and contributions.

The rules for early retirement would need to be tightened and the targeting of the benefits improved by means-testing (except that for some time the introduction of means-testing is unlikely to have strong payoff given how widespread poverty is in the population) and stronger surveillance exercised over disability claims to reduce abuses to the system.

The cost of all noncontributor benefits should be transferred to the budget and the special retirement program of the military and others should be integrated with the general pension program. A decision will have to be made about indexing existing pension benefits. Preferably, changes in pensions rather than in wages will be linked to changes in the consumer price index, given that increases of the latter will tend to reflect increases in productivity in better functioning labor markets.

The more difficult question would have to be what to do about the level of pensions. One possibility would be to have instead of a basic public pension (on a universal or means-tested basis) a minimum flat rate which, while higher than the current level, would still be relatively low, plus a limited earnings related pension scheme. The option of developing private pensions (either mandatory like the World Bank's second pillar or voluntary as in the third pillar) should not be excluded. However, it is evident that significant progress would have to be made in creating a financial system and an appropriate regulatory framework before a serious program of privatization of pensions can be considered. In this context, the reforms being implemented in transition economies, particularly the more ambitious ones of Latvia and Kazakhstan, merit close analysis by Cuban policy makers. Moreover, adopting a privatized system will have little impact in the short run in the circumstances of Cuba because the government would have no way to close the cash-flow deficit. Most, if not all, of the private pension surplus would need to go into the financing of the fiscal deficit through the purchase of government securities.