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Luxembourg: Selected Issues

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LUXEMBOURG

Selected Issues

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Pension System: Prospects and Policy Options

I. OVERVIEW

1. In Luxembourg, as in most industrialized countries, population aging will place a heavy burden on the public finances in the longer term. Official projections show the ratio of working age population to the population over 65 declining from 5 to 3 over the next 50 years. The impact of these demographic developments will be mitigated by a low public gross debt (about 7 percent of GDP) and the existence of substantial social security reserves (about 20 percent of GDP). However, the pension system in Luxembourg is also quite generous in some respects; and economic growth has relied heavily on an influx of commuting workers, who currently pay contributions while drawing few benefits, but who are accumulating substantial future claims on the social security system.

2. The purpose of this paper is provide a quantitative assessment of the long-term prospects of the Luxembourg pension system and to analyze possible reform options.[1] The results indicate a need to adopt, at an early stage and while the problems are still relatively tractable, measures to dampen the growth of pension expenditure. Otherwise, there is a risk that rising taxes or deficits could have detrimental effects on incentives for work, investment, and innovation, and result in an unsustainable slowdown of economic growth.

3. This paper adopts three methodological refinements that are found to affect only slightly the results obtained by earlier studies. First, the projections are based on annual cohort-by-cohort demographic scenarios in order to assess how the structure of the population affects long-term trends in pension expenditures and revenues. Second, the effect on the outlook for the pension system of the large share of commuting workers in Luxembourg's labor force is modeled in greater detail. Third, distinct modeling approaches are used for the pension schemes for public sector employees (which are essentially "non-contributive") and the schemes for private sector employees (which are "contributive").

4. The following section reviews the demographic outlook, describes the principal institutional features of the pension system, projects the finances of the pension system through 2050, and analyzes the effect of some policy changes. Some concluding remarks are offered in the final section.

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[1]This study builds on the paper prepared by the staff in connection with the 1996 Article IV consultation. See "Long-term prospects of the pension system," Luxembourg, Selected Issues (SM/96/87).

II. PROSPECTS AND POLICY OPTIONS

A. Demographic Projections

5. Long-term demographic projections depend sensitively on their underlying assumptions, particularly those on fertility, life expectancy, and immigration. In Luxembourg, the latter factor appears to be among the most important. Luxembourg's resident population increased by one-third or 112,800 people between 1950 and 1995; of this increase, almost three-quarters were attributable to immigration. Immigration also affects the structure of the population and its average birth rate, as immigrants tend to be younger than the population average.

6. The Luxembourg Statistical Office (STATEC) carried out its demographic projections under three different assumptions about net immigration (1000, 2500, and 4000 persons per annum). Taking into account the trend decrease in mortality, these projections show the following profiles for the old-age dependency ratio:

Table 1. Luxembourg: Old-Age Dependency Ratio

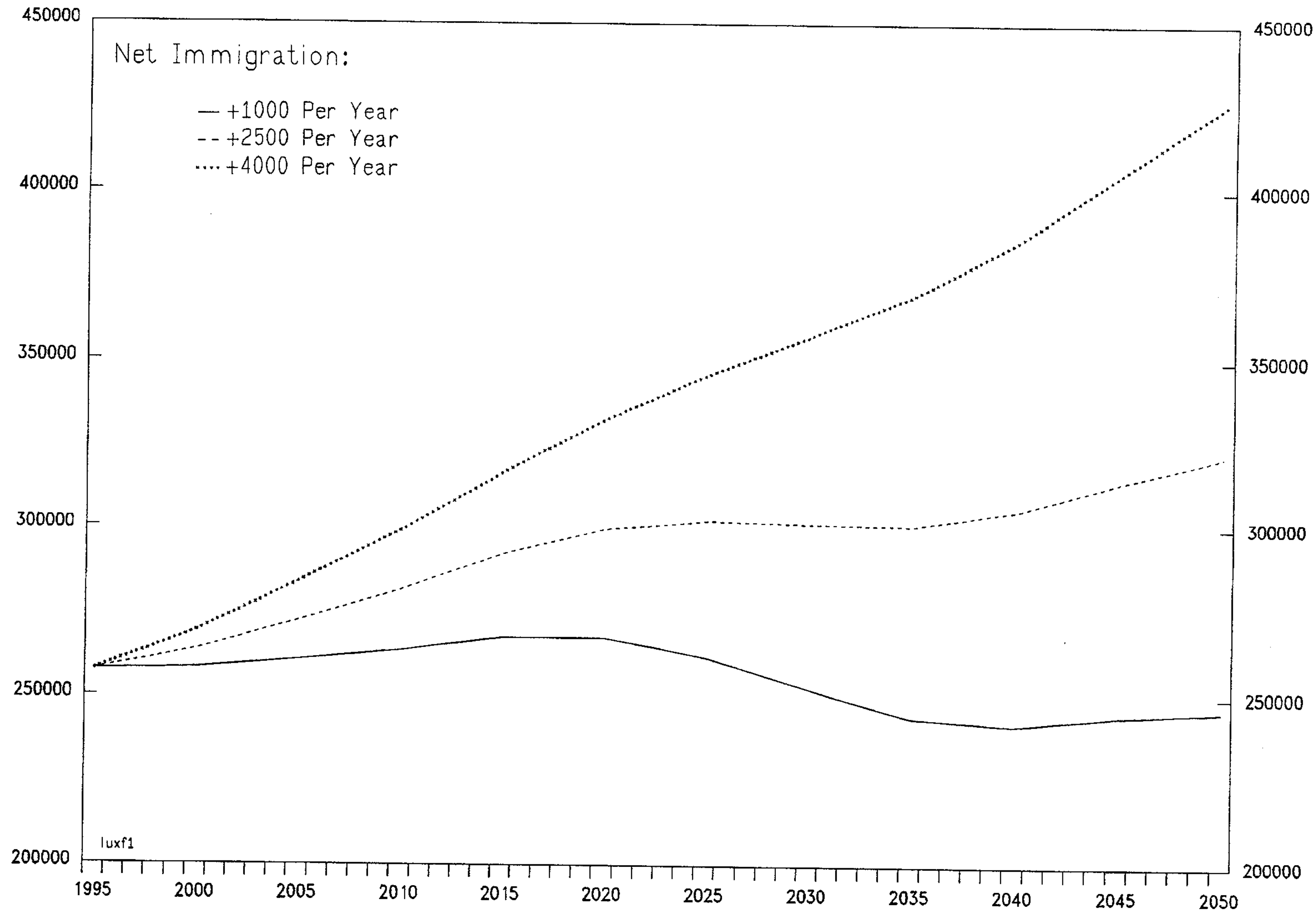
Dependency Ratio (20–65/over 65)	2000	2010	2020	2030	2040	2050
Net immigration +1,000 per annum	4.4	3.9	3.3	2.5	2.2	2.4
Net immigration +2,500 per annum	4.5	4.2	3.7	2.9	2.6	2.8
Net immigration +4,000 per annum	4.6	4.4	4.1	3.4	3.1	3.3

Source: STATEC; and staff calculations.

Thus, with an effective retirement age of 65 (which is also the current legal retirement age), the middle scenario shows that there will be 2.8 persons of working age for every retiree in 2050. However, the figure could be significantly higher or lower.

7. Immigration would also have an important effect on the size and composition of the labor force. Chart 1 shows the influence of immigration in developments of the population between 20 and 65: in the medium and high immigration scenarios, the number of potential workers is likely to rise, while there is a decline in the absolute number of potential workers in the low immigration scenario. The number of actual (as opposed to potential) workers will, of course, also depend on the labor force participation ratio, which is currently quite low owing to the widespread use of early retirement pensions *(pensions anticipées)*. Indeed, in 1996, almost 9 percent of the population aged 55–64 drew an early retirement pension.

CHART 1
LUXEMBOURG
Working Age Population



Source: STATEC, Projections de Populations 1995-2050.

8. The low participation rate of national workers is remarkable given the robust growth of employment in Luxembourg, which averaged about 3 percent annually during the 1990s. The high demand for labor has been met mainly by commuting workers, whose share in the workforce increased from about 5 percent in 1985 to 23 percent in 1996. The rapid growth of the commuting workforce has masked, for the time being, financial problems in the pension system: these workers presently pay contributions but, being younger than average, as yet draw few benefits. However, they are accumulating substantial future claims on the pension system.

B. Institutional Arrangements

9. The pension system in Luxembourg is organized on pay-as-you-go basis.[2] Two groups of schemes need to be distinguished. The first group, accounting for 91 percent of all enrollees, is composed of the four schemes covering private sector workers according to their occupational status. Blue collar workers are enrolled in the *Assurance contre la Vieillesse et l'Invalidité* (AVI), white collar wage earners and self-employed in the *Caisse de Pension des Employés Privés* (CPEP), other self-employed in the *Caisse de Pension des Artisans, des Commercants et Industriels* (CPACI), and farmers in the *Caisse de Pension Agricole* (CPA). The other and smaller group of pension schemes covers public sector workers; it is divided into separate plans for employees of the state, local government, railways, and other state agencies (e.g., postal service, central bank). Pension rights may be transferred from one pension scheme to another. The calculation of pensions and their financing are summarized in Box 1.

10. This section briefly reviews various features of the different schemes: number of enrollees and pensioners, replacement ratios, average retirement age and the implications for labor force participation, and implied rates of return to beneficiaries. It is found that there are substantial differences in the demographics of individual regimes (with those for farmers and railways workers having the highest ratios of pensioners to enrollees), and that pensions for public sector workers are substantially higher than those available in the private sector, both in absolute terms and relative to earnings. Moreover, the effective retirement age in Luxembourg is significantly lower than the legal retirement age of 65, owing primarily to generous early retirement programs; while labor force participation among older persons is among the lowest in the industrial countries.

11. Many of the schemes for private sector workers cover only a relatively small number of persons (Table 2). The ratio of enrollees to pensioners has increased somewhat overall, owing to the rapid growth of employment (especially of commuting workers), but has

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[2] In addition, some enterprises may grant some of their employees a complementary pension. Although almost no data are available on these schemes, the figure of 2,000 pensions is quoted in a 1995 report by the *Inspection générale de la sécurité sociale*.

Box 1. Luxembourg: Pension Regimes for the Private and Public Sectors

- In the pension schemes for ***private sector*** workers, contributions are levied on the gross wage (8 percent for both employers and employees). The government provides an additional 8 percent levied on the same base. Contributions are subject to a floor (the contribution levied on the minimum wage) and a ceiling (the contribution levied on five times the minimum wage). The rates are adjusted every seven years to maintain the financial viability of the system. Reserves must be kept in a range from 1.5 to 2.5 years of benefits, so that substantial revenues are drawn from interest income (8.5 percent of current income in 1996). A pension can be drawn at 65, provided the individual has contributed for a total of 10 years. Early retirement pensions are available from age 57, provided that contributions have been paid for 40 years. The pension, automatically indexed on inflation and every two years on wages, depends on two elements: (i) the length of past insurance periods (*majorations forfaitaires*), which are limited to 40 years, and (ii) the sum of all past salaries on which contributions have been levied. The formula is:

  Pension= $(0.22*80250*N/40+0.0178*M)*Adj$, where
  N= number of years of insurance,
  M= sum of past salaries,
  Adj= adjustment factor taking into account wage developments and inflation.

- In the ***public sector*** schemes, the legal retirement age is 65 and the pension is 5/6 of the last salary. Individuals below 65 are eligible if they have more than 30 years of contributions. The contribution is levied on the gross salary and the contribution rate is being raised by 1 percentage point per year, from 3 percent in 1994 to 8 percent in 1999, the same level in the private sector schemes. Government transfers offset any difference between outlays and contribution receipts. Pensions are indexed on prices and public sector wages.

A draft law for the reform of the public pension scheme aims at harmonizing the benefits with those available to private sector employees. The pension for a new entrant into the public service would be almost 20 percent lower under this plan; for incumbents, the reduction would depend on their length of service, with essentially no reduction for those now at retirement age.

declined markedly and is now significantly below unity for the farmers' pension fund. The disparities in the demographic situation of the individual funds for private sector workers has given rise to a need for significant financial transfers among them, and provides an argument for their unification in a single general scheme for private sector employees (comparable to Social Security in the United States). The demographics of the pension schemes for public sector workers are, on the whole, somewhat less favorable than those covering the private sector, a development that is attributable mainly to the railway workers' fund and which reflects a marked decrease over time in railway employment (Table 3).

Table 2. Luxembourg: Enrollees and Pensioners in Schemes for Private-Sector Workers

		1980	1985	1990	1994	1995	1996
AVI	Enrollees	80,095	78,557	88,419	97,051	98,453	100,222
	Pensioners	42,584	45,261	52,218	60,812	63,348	65,635
CPEP	Enrollees	42,164	51,169	69,834	84,877	88,899	93,036
	Pensioners	9,980	11,115	13,585	16,874	17,663	18,505
CPACI	Enrollees	9,506	8,609	8,878	9,352	9,465	9,440
	Pensioners	7,396	7,786	7,912	8,203	8,254	8,336
CPA	Enrollees	7,838	6,146	5,157	4,086	3,870	3,729
	Pensioners	7,818	7,651	7,243	7,274	7,250	7,179
Total	Enrollees	139,603	144,581	172,288	195,366	200,687	206,427
	Pensioners	67,778	71,813	80,958	93,163	96,515	99,655

Source: Rapport Général sur la Sécurité Sociale (1997).

Table 3. Luxembourg: Enrollees and Pensioners in Schemes for Public-Sector Workers

		1990	1992	1994	1995	1996
Railways workers	Affiliated	3,484	3,484	3,336	3,205	3,130
	Pensioners	4,140	4,070	3,984	3,950	3,942
Local governments	Affiliated	3,101	3,376	3,443	3,434	3,429
	Pensioners	1,569	1,613	1,663	1,674	1,685
State	Affiliated	12,136	12,680	13,104	13,272	13,496
	Pensioners	5,289	5,446	5,587	5,619	5,719
Total	Affiliated	18,721	19,540	19,883	19,911	20,055
	Pensioners	10,998	1,1129	11,234	1,1234	11,346

Source: Rapport Général sur la Sécurité Sociale (1997).

12. The evolution of average replacement ratios in the four private sector pension schemes from 1993 to 1996 is shown in Table 4.[3] The relatively low and declining ratio in the main white and blue collar pension schemes (CPEP and AVI) reflects the comparatively short careers of commuting workers now drawing pensions; an increase in the average length of commuters' careers would lead these ratios to rise to a level closer to that in the other two schemes, which have presumably already reached their maturity.

Table 4. Luxembourg: Replacement Ratios
in the Pension Schemes for Private Sector Workers
(In percent)

	1993	1994	1995	1996
AVI	56.3	55.4	55.9	54.3
CPEP	60.8	59.9	60.5	59.6
CPACI	58.8	59.1	61.6	62.0
CPA	69.0	69.5	73.4	69.4

Sources: Data provided by the authorities; and staff calculations.

13. Replacement ratios for public sector workers are much higher than in the private sector, and most recently *averaged* about 100 percent: with the progression of incomes over a typical career, five-sixths of the last income (the statutory replacement ratio) closely corresponds to the average wage in the public sector.[4] In addition to being based only on the last wage rather than on career earnings, public sector pensions are not subject to a ceiling as are private sector pensions. It is interesting to compare directly the pensions drawn by persons in the public and private sectors with identical careers (Table 5). Not only are pensions higher overall in the public sector, but they are disproportionately higher for individuals in the upper salary brackets owing to the presence of contribution and benefit ceilings for private sector pensions.

[3]The ratio is calculated as the ratio of the average gross pension paid in December of a given year to the average monthly gross wage income of the same year.

[4]The average pension is calculated from the distribution of pensioners by pension brackets.

Table 5. Luxembourg: Differences Between Private and Public Sector Pensions, 1995

Administrative Rank	Pension	Pension in a Private Pension Scheme	Difference (in percent)
Low	86,336	78,401	10.12
Medium low	133,757	104,288	28.26
Medium high	180,012	127,231	41.48
High	226,500	158,67	43.02

Source: "Etude actuarielle des régimes de pension," Ministère de la Sécurité Sociale, Inspection Générale de la Sécurité Sociale, Luxembourg, October 1995.

14. Though the legal retirement age is 65, workers are eligible for early retirement pensions from the age of 57, provided that 40 years of contributions have been accumulated. Table 6 shows that the average retirement age has declined somewhat over the past decade, more so for men than for women; though it has risen most recently reflecting the virtual completion of restructuring in the steel sector (during which extensive use was made of early retirement). It is also worth noting that the labor force participation rate for persons aged 55-64, at 22.6 percent, is the second-lowest among the OECD countries. For men, the rate in the 55-64 age bracket is 35.6 percent, compared with an OECD-Europe average of 52.2 percent; thus, low overall participation in this age group is not merely a reflection of low female participation.

Table 6. Luxembourg: Average Age of the Beneficiary at the Time of Pension Allocation

	1985	1990	1992	1993	1994	1995
Men	62.6	61.9	61.7	60.4	61.3	61.4
Women	64.2	64.4	63.8	63.4	63.6	63.8

Source: Rapport général sur la sécurité sociale (1997).

15. The public pension schemes for private sector workers are legally required to maintain reserves of between 1.5 and 2.5 years of benefits; most recently, these reserves currently amount to about 20 percent of GDP. Table 7 shows that the rates of return earned on these reserves is well below alternative investments. These differences are attributable to the investment policy of these pension funds, which has tended to concentrate on domestic real estate and enterprise lending.

Table 7. Luxembourg: Rate of Return on Pension Reserves
(In percent)

	1992	1993	1994	1995	1996
Actual rate of return	7.2	6.9	5.9	5.1	4.4
10-year government bonds	7.9	6.9	6.4	6.1	5.2
Lending rate	8.3	8.9	7.7	6.6	6.5

Sources: Rapport général sur la sécurité sociale (1997); and IMF International Financial Statistics.

C. Analytical Framework and Baseline Projections

16. There are few quantitative studies of long-term prospects of the Luxembourg pension system. A previous staff study estimated that pension payments, which amounted to 11.5 percent of GDP in 1994, would likely rise to 16.1 percent of GDP in 2030, a level that appears high but manageable by comparison with other industrial countries.[5] A study carried out by the Luxembourg Ministry of Social Security arrived at a similar conclusion.[6]

17. The most critical assumptions in the simulations that follow concern (i) the underlying demographic outlook and (ii) future rates of economic and productivity growth (which determine the demand for labor and in particular for commuting workers). Regarding demographics, the simulations in this paper are based on the central official scenario, which assumes 2,500 immigrants per annum and a life expectancy that rises from 72.4 years in 1991 to 78.5 years in 2050 for men, and from 79.1 years in 1991 to 85 years in 2050 for women.[7]

18. The estimation of potential growth in Luxembourg is complicated by the absence of data on the capital stock, a supply of labor that is to a considerable extent endogenous (as reflected in the employment of commuting workers), and the rather unpredictable outlook for

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[5] "Long-term prospects of the pension system" Luxembourg, Selected Issues (SM/96/87).

[6] "Etude actuarielle des régimes de pension," Inspection générale de la Sécurité Sociale. Luxembourg, October 1995.

[7] STATEC, *Projections de Population, 1995–2050*.

the financial sector.[8] As was noted earlier, a slowdown in economic growth, to a rate more in line with that prevailing in other western European countries, would also bring with it a deceleration in the growth of employment of commuters, and could add to the difficulty of financing the pension system.

19. In order to capture the uncertainty surrounding the outlook for growth, two scenarios were considered. Both assume unchanged pension benefit and contribution policies; labor productivity growth of 2 percent per annum; and public sector employment that rises by 1 percent per annum, as in the past. Against this background, the first scenario envisages a slowdown in GDP growth to 3 percent per annum (which is still significantly higher than the 2.5 percent potential growth rate in neighboring countries). The second scenario assumes a continuation of the rapid economic growth of the past two decades, with GDP increasing by 5 percent per annum.

20. Given the assumptions on the growth of real GDP and labor productivity, it is possible to derive the growth rate of total employment, which is in turn divided into three components: (i) public sector workers (whose rate of growth is exogenously given); (ii) resident workers (taking account of the actual distribution of labor force participation by age group and the demographic structure of the population); and (iii) commuters (determined as a residual from the total amount of labor and the first two components of the labor force). It will be assumed that the age distribution of the inflow of new commuters is concentrated between 20 and 40. The average wage is driven by the rate of productivity growth, so the share of labor income in GDP remains constant.

21. Each of these segments of the labor force receives a pension in accordance with the typical provisions of the schemes by which it is covered:

- public servants receive a replacement rate equivalent to 100 percent of the average wage;

- resident workers in the private sector receive 60 percent of the average gross wage;

- the replacement rate of commuters gradually catches up to that of resident workers by 2020, from a level that is currently substantially lower, owing to their shorter and often more fragmented careers.

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[8]The financial sector has for many years been the driving force behind economic growth. Though it presently accounts for only 20 percent of value-added and 10 percent of employment, its exercises a wide-ranging influence on the overall economy. Many parts of the broader service sector are dependent on it; and changes in its vigor would have a strong effect on overall tax revenue and social security contributions. Moreover, the future evolution of the financial sector is not a given, but will depend sensitively on developments in the tax and regulatory environment in Europe and elsewhere.

22. The results are summarized in Tables 8 (baseline) and 9 (high growth). In the baseline scenario, the share of pensions in GDP rises to 16.3 percent by 2030, confirming the results of the previous staff study. The reserves of the pension schemes for private sector employees (now 23 percent of GDP) will be exhausted during the 2020s, and a substantial public debt accumulated by 2050. By contrast, in the high growth scenario, contributions are more than sufficient to cover pensions, and the ratio of reserves to GDP increases before falling again towards the end of the projection horizon.

Table 8. Luxembourg: Baseline Scenario
(In percent of GDP)

	1996	2000	2010	2020	2030	2040	2050
Reserves	22.9	24.9	29.2	22.3	-5.4	-47.3	-90.9
Transfers	4.3	4.5	4.8	5.0	5.3	5.5	5.4
Private schemes	3.4	3.4	3.4	3.4	3.5	3.5	3.5
Public schemes	0.9	1.2	1.4	1.6	1.9	2.1	1.9
Contributions	10.5	10.6	10.6	10.7	10.7	10.8	10.8
Public scheme	0.4	0.4	0.4	0.3	0.3	0.3	0.3
Private scheme	10.2	10.2	10.3	10.3	10.4	10.5	10.5
Pensions	11.2	11.1	11.8	13.6	16.3	17.2	17.6
Public	1.3	1.5	1.8	1.9	2.2	2.4	2.2
Private	9.9	9.6	10.1	11.7	14.1	14.9	15.4

Source: Staff calculations.

Table 9. Luxembourg: High Growth Scenario
(In percent GDP)

	1996	2000	2010	2020	2030	2040	2050
Reserves	22.9	24.7	37.3	50.5	52.6	45.6	38.1
Transfers	4.3	4.5	4.6	4.7	4.8	4.8	4.6
Private schemes	3.4	3.4	3.5	3.6	3.6	3.7	3.7
Public schemes	0.9	1.1	1.1	1.1	1.1	1.1	0.9
Contributions	10.5	10.6	10.8	10.9	11.1	11.2	11.3
Public scheme	0.4	0.4	0.3	0.2	0.2	0.2	0.1
Private scheme	10.2	10.3	10.5	10.7	10.9	11.0	11.2
Pensions	11.2	10.5	9.7	9.9	11.4	12.0	12.1
Public	1.3	1.4	1.4	1.4	1.3	1.3	1.0
Private	9.9	9.0	8.2	8.6	10.0	10.7	11.1

Source: Staff calculations.

23. It is worth noting the implications of the growing recourse to commuters. As indicated above, commuters will contribute a larger and larger part to the financing of the system, but will also draw a growing fraction of pensions inasmuch as their share of total pensioners increases and their careers become more similar to those of resident workers. Already, between 1990 and 1996, pension outlays transferred abroad more than doubled, while the share of pensioners abroad rose from 26.6 percent to 31.4 percent. Table 10 provides projections through 2050, on the assumptions of the baseline scenario. By 2030, the share of non-resident pensioners and pension payments transferred abroad will grow to about one-half of the total.

Table 10. Luxembourg: Non-Resident Workers and Pensioners 1/

	1996	2000	2010	2020	2030	2040	2050
Nonresident pensioners (percent of private sector pensioners)	31.4	29.1	27.0	29.1	36.9	46.1	54.6
Pension outlay transferred abroad (percent total private sector pension outlay)	14.3	12.9	18.3	25.6	35.9	45.9	54.6
Contribution payed by commuting workers (percent of total contribution, including state transfer) 2/	25.3	29.5	40.9	50.9	59.2	65.6	70.8

Source: Staff calculations.
1/ Baseline scenario.
2/ Same as share of non-resident workers in overall private sector employment.

D. Policy Options

24. This section reviews some of the policy options that could alleviate the growing imbalance affecting the pension schemes, in particular changes in indexation, prefunding of pensions, and improved management of pension reserves. An increase in the effective retirement age is not modeled here, but should remain under consideration.

25. Pensions are currently indexed on prices and gross wages, so that pension incomes track those of active workers. Indexing only on prices would produce considerable economies, as shown in Table 11. The share of pensions in GDP would be some 2½ percentage points lower than in the baseline in 2030, and more than 3 percentage points lower in 2050. Accordingly, the accumulated deficit (as a share of GDP) would be about 80 percentage points lower in 2050.

26. Prefunding pensions offers another means of improving the financial outlook for the pension system. Such prefunding can be accomplished either within the existing public sector framework, or by transferring part of pension provision to a privately funded, actuarily balanced, and mandatory "second pillar" pension scheme. This type of reform may be modeled as a

frontloaded increase in the contribution rate (while leaving pension benefits unchanged). Increasing the employee contribution rate by 3 percentage points by 2000 would reduce the accumulated deficit of the pension system by some 60 percentage points, relative to the baseline (Table 12). The cost, which amounts to 1½ percentage points GDP on top of the baseline contributions, seems quite low compared with the increase in contribution rates needed to achieve the same result in other European countries.

Table 11. Luxembourg: Change in Indexation Rules

(In percent of GDP)

	1996	2000	2010	2020	2030	2040	2050
Reserves	22.9	26.8	40.4	46.7	35.7	14.1	-7.2
Transfers	4.2	4.5	4.6	4.8	5.0	5.2	5.0
Private schemes	3.4	3.4	3.4	3.4	3.5	3.5	3.5
Public schemes	0.9	1.1	1.2	1.3	1.5	1.7	1.5
Contributions	10.5	10.6	10.6	10.7	10.7	10.8	10.8
Public scheme	0.4	0.4	0.4	0.3	0.3	0.3	0.3
Private scheme	10.2	10.2	10.3	10.3	10.4	10.5	10.5
Pensions	11.0	10.4	10.5	11.8	14.0	14.5	14.6
Public	1.2	1.4	1.6	1.7	1.9	2.0	1.8
Private	9.8	9.0	8.9	10.1	12.1	12.5	12.8

Source: Staff calculations.

Table 12. Luxembourg: Prefunding

(In percent of GDP)

	1996	2000	2010	2020	2030	2040	2050
Reserves	22.9	26.4	44.7	51.3	36.6	7.2	-24.4
Transfers	4.3	5.0	5.2	5.4	5.7	6.0	5.9
Private schemes	3.4	3.9	3.9	3.9	3.9	4.0	4.0
Public schemes	0.9	1.1	1.3	1.5	1.8	2.0	1.9
Contributions	10.5	12.0	12.1	12.2	12.2	12.3	12.3
Public schemes	0.4	0.4	0.4	0.4	0.4	0.4	0.3
Private schemes	10.2	11.6	11.7	11.8	11.8	11.9	12.0
Pensions	11.2	11.1	11.8	13.6	16.2	17.2	17.6
Public	1.3	1.5	1.7	1.9	2.2	2.3	2.2
Private	9.9	9.6	10.1	11.7	14.1	14.9	15.4

Source: Staff calculations.

27. As indicated in Section II.B, above, the reserves of the Luxembourg pension system are invested in a way that yields a rate of return well below similarly or less risky alternatives. Improved management of these reserves is simulated by assuming that the rate of return increases from 2.5 percent in 1998 to 3.5 percent in 2001 and remains there while reserves are positive

(Table 13). Such an improvement postpones by about a decade the time at which the reserves are exhausted in the 2020s, and reduces the debt of the pension system by 6 percentage points in 2050.

Table 13. Luxembourg: Improved Reserve Management

(In percent of GDP)

	1996	2000	2010	2020	2030	2040	2050
Reserves	22.9	25.2	32.3	28.4	2.1	-40.1	-84.1
Transfers	4.3	4.5	4.8	5.0	5.3	5.5	5.4
Private schemes	3.4	3.4	3.4	3.4	3.5	3.5	3.5
Public schemes	0.9	1.2	1.4	1.6	1.9	2.1	1.9
Contributions	10.5	10.6	10.6	10.7	10.7	10.8	10.8
Public schemes	0.4	0.4	0.4	0.3	0.3	0.3	0.3
Private schemes	10.2	10.2	10.3	10.3	10.4	10.5	10.5
Pensions	11.2	11.1	11.8	13.6	16.3	17.2	17.6
Public	1.3	1.5	1.8	1.9	2.2	2.4	2.2
Private	9.9	9.6	10.1	11.7	14.1	14.9	15.4

Source: Staff calculations.

28. Each of these three scenarios shows that the financial outlook for the Luxembourg pension system can be improved in coming decades with adaptations that appear to be small, at least compared with what would be needed in most other European countries. A mix of these three policies, combined with some steps to increase the effective retirement age, would strengthen the fiscal balance of the pension system and could be implemented without changing the core of its social goals.

III. CONCLUSIONS

29. The Luxembourg pension system, though in a more favorable condition than others in the industrial countries, will still face major challenges in decades to come, owing to the anticipated aging of the population and the generosity of the public pension policies now in place. These results are in accord with those obtained in earlier studies, but are founded on a more sophisticated quantitative analysis.

30. The study also shows that the situation could be remedied fairly easily, compared with other industrial countries, owing to the existence of substantial reserves in the pension system and the likelihood that Luxembourg will enjoy somewhat faster growth than other industrial countries owing to its position as a regional urban center. A policy aimed at reducing somewhat the generosity of indexation, further building up reserves and improving the rate of return they earn, and steps to increase somewhat the effective retirement age could stabilize the pension system until well beyond 2030.