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Romania's Pension System
From Crisis to Reform

Georges de Menil and Eytan Sheshinski

13.1 Introduction

Romania, a country of 23 million people strategically located at the mouth of the Danube, is the largest country in Southeastern Europe. When communism collapsed in Europe, the leadership of the Romanian Communist Party ousted the dictator Nicolae Ceausescu in a bloody coup, and set the country on a course of slow transition to the market. In November 1996, a coalition of democratic parties defeated the reformed communists in legislative and presidential elections and launched a new program of radical reforms. Pension reform become a key feature of this program.

This paper describes pension reform in Romania. Sections 13.2 through 13.3 review the prereform situation, focusing on initial economic and dem-

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ographic conditions and on the characteristics of the social security system in 1996. Section 13.4 describes the political economy of the process. Sections 13.5 through 13.7 sketch the architecture of the new public and private systems. Sections 13.8, 13.9, and 13.10 analyze the budgetary, economic, and financial effects of transition to the new system. Section 13.11 concludes.

13.2 Initial Conditions: The Economy

Economically, Romania lies near the poorest end of the spectrum of the transition economies of Eastern Europe and the former Soviet Union. In 1998, its gross domestic product (GDP) per capita ($1,696) was well below that of the Czech Republic ($5,479) and of Hungary ($4,694), and close to that of Russia ($1,882). Official output was still 25 percent below the level of that during the last communist year; its declines in the first post-communist years had not yet been erased by a sustained period of recovery, as they had in Poland and Hungary. On the other hand, output had not dropped as far (40 percent) as it had in Russia (see Vienna Institute for International Economic Studies [WIIW] 2000). In its level of cumulative liberalization since the end of communism, Romania was substantially behind Poland and the Czech Republic.

13.3 Initial Conditions: The Pension System

The public pension system Romania inherited from the Ceausescu regime was a loose collection of separate systems for the main industrial workforce, farmers, artisans and craftsmen, church officials, and other categories. The principal pensions, those of former industrial workers, were financed by social security contributions that formally passed through a social insurance fund to the budget. The provisions of the system as it existed in 1989 were unsustainable. To survive the transition to a decentralized (even if only slightly privatized) economy, the social security system inherited from Ceausescu would have required radical consolidation and a comprehensive tightening of the rules.

The successive governments between 1990 and 1996 chose to go in exactly the opposite direction, increasing the number of beneficiaries and multiplying special retirement provisions. At the same time, a general migration from the formal to the informal economy—to which social security taxation contributed, but of which it was not the only cause—melted away the contributor base.

Sections 13.3.3 and 13.3.4 summarize the way in which a decade of unsustainable relaxation of benefit criteria and of growing tax evasion left the public pension system in deep crisis as the century closed. We begin,

however, with brief descriptions of the imbalances inherited from the previous regime (section 13.3.1) and of subsequent demographic and economic trends (section 13.3.2), both of which were unfavorable.

13.3.1 The Pension Legacy of the Ceausescu Regime

In 1989, 3.5 times as many contributors as beneficiaries were covered by the basic state pension system. The balance would have seemed able to support a reasonable pay-as-you-go (PAYGO) system; however, two fatal flaws rendered the system unviable: The benefit formulas were too generous, and the state provided pensions to many retirees outside the system, who made no contributions.

Benefit Formulas

The rules regulating the regime's pension system, many of which had been enacted in 1977, provided that a new retiree was entitled to a pension equal to about 75 percent of the average wage earned in the five best consecutive of the previous ten years. This implied a replacement ratio of about 65 percent, possibly higher. With a ratio of contributors to beneficiaries of 3.5, such a generous replacement ratio would have required a social security tax of 18.6 percent; the actual tax was 14 percent. Clearly, an adjustment was needed.

Another imbalance characterized a supplementary pension scheme, which had been operating since 1968. Whereas contributions to the basic pension scheme were paid by employers, contributions to the supplementary scheme were paid entirely by employees. The contribution rate was 3 percent. The problem was that this entitled the worker to a supplementary pension of 8 percent of the average of the five best of the previous ten years' wages, after he or she had worked five years. The addition to the replacement rate increased to 16 percent after twenty-five years of work. Given the ratio of contributors to beneficiaries, the additional contribution rate required for balance at maturity was 4.6 percent.

During the introductory years of this system, while workers were making contributions but not receiving benefits, the system was obviously in surplus. However, the parameters were such that once it reached full maturity, it would have been sustainable only with a contribution-beneficiary ratio of 5. 3. Again, something had to give.

Uncovered Beneficiaries: Farmers and Others

The largest category of uncovered beneficiaries was farmers, many of whom were employees of cooperative farms. The cooperatives were dissolved in 1990. Two years later, the farmers' contributions to their special pension system became optional; only a small portion of them (approximately 80,000 in 1999—less than 5 percent of potential contributors) agreed to pay the 7 percent contribution rate. To cover the farmers' pen-

sion payments, the government introduced a special tax on companies involved with food and agricultural products.

In summary, the average replacement ratio implied by the written and implicit rules of the Ceausescu pension system was many times the average contribution rate. The ratio of the former to the latter far exceeded the adjusted real ratio of contributors to beneficiaries. Had the Ceausescu pension system not, in fact, been run by a state that commanded the entire economy, it would have collapsed.

13.3.2 Demographic and Economic Fundamentals

Adverse demographic developments made a relatively modest contribution to Romania's pension squeeze during the 1990s. The population above the age of sixty did increase by 14 percent from the beginning to the end of the decade as well-populated cohorts aged. The prime working-age population (fifteen to sixty years), however, remained stable at about 14.1 million.[1]

Declining output and an even greater reduction of real wages—which were half their 1990 levels by the end of the decade—did reduce the potential base in the real economy for the funding of a PAYGO system. However, distortions attributable to the system itself were the greatest contributors to its increasing imbalances.

13.3.3 System Effects: A Growing Number of Beneficiaries

Throughout the region, there was a tendency for both postcommunist and reformed communist administrations to undermine the solvency of the PAYGO systems they inherited from the Soviet period. In order to solidify popular support, they tended to grant liberal advantages to special interest groups; common among these were special early retirement arrangements and other pension provisions. In Romania, this granting of privileges and exemptions led to a rate of increase in the number of retirees far higher than that observed in any other country in Eastern Europe (see Rutkowski 1999, fig. 1). Average benefits per retiree were also ratcheted up at sensitive moments, even if they would subsequently be allowed to become eroded by inflation.

The first big increase in entitlements came within months of the fall of Ceausescu, when five years of early retirement with full pensions were granted to individuals who had worked longer than thirty years (for men) or twenty-five years (for women). This provision caused the number of retirees with full benefits to jump by almost 400,000 persons, from 1.068

1. Ceausescu's promotion of population growth (abortion was outlawed in 1967) did not, as might have been expected, result in an increase of the prime working-age population in the 1990s. Many of the additional young people born in the 1970s and 1980s appear either to have died or to have emigrated right after the fall of the regime. See National Commission of Statistics (various years).

million at the end of 1990 to 1.423 million at the end of 1991. (This increase accounts for most of the increase in the total number of pensioners of all categories, which is reported in table 13.1.) Because both numbers are year-end figures, it can be fairly said that the immediate effect of the decree was to create a one-year flow of new entrants into retirement equal to half of the existing stock.

Eligibility for early retirement was subsequently extended for workers in "hardship" categories. Workers in "difficult" and "very difficult" occupations (working groups II and I) could reduce their ages of retirement with full benefits to fifty-five years for men and fifty for women (group II) and to fifty years for men and forty-five for women (group I). The definition of hardship was lax. At the end of 1989, the number of employees in working groups I and II was about 300,000; by the end of 1992, this number has risen to 3 million (see Ministry of Labor and Social Reform 1993). These and other relaxations of retirement criteria caused the total stock of retirees in all categories under the state system (not including farmers and some other categories) to rise to 3.9 million by 1998, an increase of sixty-five percent over the 1990 level.

13.3.4 System Effects: The Collapse of the Number of Contributors

The decade was also marked by a dramatic decline in the number of contributors to the state pension system. (See table 13.1.) Between 1990 and 1998, the number of contributors fell by almost 3 million. Of this number, 1 million[2] (about one-third of the decrease) corresponded to a significant rise in unemployment. By the end of 1998, the unemployed constituted 10 percent of the number of active persons. Under the prereform system in Romania, unemployed persons did not make social security contributions. Each additional unemployed person reduced the contributor base—a classic example of the way in which unemployment strains a social security system.

The increase in unemployment was not the only source of contributor-base erosion during the decade. The number of active persons dropped by 1 million, although the working-age population (aged fifteen to sixty) remained constant. The implication is that the number of inactive persons grew by about 1 million. Furthermore, the number of employed persons who were not wage earners (farmers, other self-employed, part-time workers, etc.) grew by about 1 million to a total of 3,612,000 in 1998—this, at a time when the farming population is known to have remained stable.

Thus, a total of about 2 million persons—twice as many as the number unemployed by the transition—moved out of active labor market status

2. These data are for the registered unemployed, many of whom continue to be employed. Unemployment by International Labor Organization (ILO) measures is three-fourths of this number.

Table 13.1 Basic Facts of Romania's State Pension System

Demographic and Economic Trends	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total population	23,206,720	23,185,084	22,788,969	22,755,260	22,730,622	22,680,951	22,607,620	22,545,925	22,513,233
Population aged 15–60 years	14,105,078	14,148,184	13,908,563	13,965,275	14,026,502	14,075,541	14,098,705	14,101,632	14,094,720
Population aged 60 years and older	3,632,966	3,708,780	3,778,153	3,842,518	3,901,357	3,960,969	4,009,166	4,068,500	4,130,225
Ratio of population over age 60 to population aged 15–60 (%)	25.76	26.21	27.16	27.51	27.81	28.14	28.44	28.85	29.30
Indices of real economy-wide net wage (%; 1989 wage = 100)	104.6	84.9	73.2	61.7	61.8	69.1	75.5	58.6	55.6
Beneficiaries									
Average number of pensioners (all categories)	2,380,038	2,816,629	2,996,419	3,174,128	3,358,925	3,518,932	3,651,728	3,782,304	3,923,721
Ratio of beneficiaries to population aged 15–60 years (%)	16.87	19.90	21.54	22.73	23.94	25.00	25.90	26.82	27.83
Contributors									
Number of active persons	10,840,000	11,123,440	11,387,019	11,226,705	11,234,925	10,491,432	10,036,564	9,904,475	9,837,100
Number of employed	10,840,000	10,786,000	10,458,000	10,062,000	10,011,000	9,493,000	9,379,000	9,023,000	8,812,000
Number of unemployed	n.a.	337,440	929,019	1,164,705	1,223,925	998,432	657,564	881,435	1,025,100
Number of Wage Earners (Contributors)	8,156,000	7,574,000	6,888,000	6,672,000	6,438,000	6,160,000	5,939,000	5,597,000	5,200,000
Ratio of contributors to population aged 15–60 years (%)	57.82	53.53	49.52	47.77	45.90	43.76	42.12	39.69	36.90
Imbalance									
Dependency ratio (number of wage earners/number of pensioners)	3.43	2.69	2.17	2.10	1.91	1.75	1.63	1.48	1.32
Indices of real average pension benefits (%)	100.0	77.5	63.7	56.5	55.3	61.2	62.8	49.7	48.5
Replacement ratio (ratio of average pension to average net wage; %)	44.69	45.05	43.64	45.20	43.27	40.78	38.60	40.33	39.13

Sources: Calculations by Pro Democratia Foundation and the Ministry of Labor and Social Protection.

Notes: Numbers of beneficiaries and contributors refer only to those in the basic state system. They exclude farmers, self-employed persons, and other categories with special pension systems, and do not take account of contributors to or benefits received from the supplementary pension system. Numbers of the employed are end-of-year data from the *Statistical Yearbook* for 1990–97 period. Data for 1998 are from the National Commission of Statistics (NCS) labor force balance. According to the NCS methodology, the employed include all persons who, during the reference year, carried out socioeconomically profitable activities, excepting military staff and employees of similar political and community organizations, and convicts. The unemployed are those who were registered unemployed at the end of the year, as published in the NCS 1998 yearbook and monthly bulletins from 1998 to 1999. The number of active persons is the sum of employed and unemployed persons. The number of wage earners is the average number of employees. n.a. = not available.

and wage reporting jobs during this period. Many of these probably went into the informal economy. Relative to the original contributor base (8,156,000 wage earners in 1990) this represents a decline of 24 percent. The loss of the contributor base to unemployment corresponds to an additional decline of 13 percent. The total reduction of the contributor base was thus 37 percent.

Explanations for the erosion of the official contribution-paying workforce are not difficult to find. There were both a demand and a supply for tax evasion. On the side of demand, the incentive not to declare was substantial: Taxes on wages increased dramatically throughout this decade. By 1999, the total tax rate for the top income bracket—which began at the equivalent of $500 per month—was 118 percent: 58 percent for various social contributions, and 60 percent for the wage tax.

At the same time, the declining enforcement capacity of the state in many areas generated an increasing number of opportunities to evade taxes. The demise of the command economy, decentralization, and the relatively more rapid growth of private wages than civil service wages all combined to produce opportunities for bribes, and to reduce the effectiveness of tax collection in general.

Whatever the explanation, a loss of 37 percent of the contributor base, combined with a 65 percent increase in the number of beneficiaries, inevitably magnified the imbalance of the system.

13.3.5 The Resulting Imbalance

The unsustainability of the Ceausescu pension system was not immediately apparent because benefits were paid directly from the state budget. As we have seen, some of the first actions of the new government went in the direction of widening it.

From 1990 to 1992, the government responded to the growing imbalances in the system by progressively raising the basic tax rate for social security contributions from 14.0 percent to 25.5 percent, an increase of 82 percent, in a little over two years. The resulting increase in revenues collected was surprisingly low: Real revenues actually fell by 8 percent in 1992. Nonpayment of taxes, particularly by large state enterprises, became a common practice at that time.

For the remainder of the period, through 1996, inflation remained the principal mechanism for controlling the growing imbalances in the system. The commitment to replace the average wages of the best five of the previous ten years referred to the *nominal* value of those past wages. Inflation reduced the real value of that commitment.

Pensions were not eradicated by inflation, as they were in Russia, where they did not keep pace with prices at all. The government arbitrarily increased existing nominal pensions each year. These operations were called "indexations", but they fell far short of compensating for price increases.

The real value of wages similarly declined, but pensions were generally adjusted to a lesser degree than wages, and, as a consequence, the replacement ratio tended to decline, falling from a high of 45.2 in 1993 to a low of 38.6 in 1996 (a drop of 15 percent).

In 1996, the Vacaroiu government partially released even the inflation break. Government Decision 595/96 provided that the wage history of new retirees would no longer be based on historical, nominal net wages, but would be indexed to equivalent, current wages. This resulted in roughly a 20 percent increase in the pensions that would be due to all future new retirees. The public pension system entered a period of terminal crisis at that point; the basic system was constantly in deficit from 1995 through the end of the century.

The last attempt to balance the old system, in January 1999, was an increase in the combined, basic-plus-supplementary tax rate, from 28.5 percent to 37.5 percent. This time, an effort had been made to enforce greater compliance; nonetheless, real revenues rose by only 4 percent. Fortunately, a complete overhaul of the Romanian pension system was, at that point, underway.

13.4 The Political Economy of Pension Reform

The fact that Romania did not join the first wave of rapid reformers in Eastern Europe between 1990 and 1992 had long-lasting implications for the country.

Romania lost the potential benefit of a period of "exceptional politics," such as Balcerowicz (1994) has described, in which the society was prepared to accept a broad program of democratization and liberalization. Instead it followed during the first seven years, a self-styled gradualist strategy, and postponed many major structural changes. Three successive International Monetary Fund (IMF) standby agreements were signed and shortly thereafter broken. The cumulative pressure of the resulting imbalances eventually bred conditions of crisis in which reform became inevitable. It was thus that in the time leading up to the elections of November 1996, an incipient budgetary and balance-of-payments crisis created the conditions that made the newly elected democratic coalition government's program of liberalization, convertibility, and stabilization a necessity. Similarly, the cumulative imbalances of the pension system also made comprehensive reform inevitable.

As the new prime minister, Victor Ciorbea, moved to free the exchange rate and prices and to eliminate subsidies, the new minister of labor and social protection, Alexandru Athanasiu, resumed work on a stalled public-pension reform act designed to correct the major imbalances. The liberalization and stabilization programs were imbedded in agreements with the IMF for a new standby loan, and with the World Bank for a resumption

of private-sector and agricultural-sector adjustment loans (which had been suspended a year earlier). The World Bank made the approval and passage of public pension reform a performance criterion for its revived private-sector adjustment loan.

The upshot was that in Romania, proposals for a comprehensive reform of the public system (the first pillar) were the first pension reform proposals to be approved by government and sent to Parliament (September 1998), and the first to be passed by Parliament (December 1999). At the initiative and insistence of Minister Athanasiu, a proposal for the creation of a mandatory system of private, funded pensions (the second pillar) was submitted to Parliament in January 1999, four months after submission of the first-pillar law. Political conflict led to procedural delays, and it took eighteen months for the draft law to clear the budgetary and labor commissions of the Chamber of Deputies (June 2000). By then, the governing coalition had weathered the second of two internal crises that marked its term, a new government had been formed, and legislative elections were five months away (November 2000). The new prime minister, Mugar Isarescu (previously the governor of the central bank) and the new minister of labor, Smaranda Dobrescu, were both forceful advocates of a fully funded and privately managed second pillar. The prime minister had supported the project as central-bank governor, because it promised to raise domestic saving and to redress the growing imbalance between dependent beneficiaries and working contributors. Minister Dobrescu was committed to the project as a fiscally responsible, medium-term answer to the impoverished state of pensioners. Together they tried to accelerate the legislative process. The prime minister submitted the draft law for review to the Economic and Social Commission, a consultative body with important union and employer representation. After intensive but rapid deliberations, the commission approved the project, and the government promulgated the law (modified to take account of some of the observations of the commission) as an emergency ordinance.[3] The government's expectation was that the consensual nature of the project would permit the new legislature—which, by necessity, would have to approve or modify the ordinance—to deliberate more efficiently and rapidly.

In point of fact, the new government that formed after the elections in December 2000 included second-pillar reform as a legislative priority in the program, on the basis of which it obtained parliamentary confirmation. It nonetheless cancelled the emergency ordinance, and mandated a new special commission to review pension reform strategy. Legislation has also been drafted to regulate voluntary private pension funds (the third pillar) and is awaiting consideration by the government.

3. By then, Minister Dobrescu had left the government and been replaced by Lucian Albu, an economist, who was also a strong advocate of the project.

The sequence in which reform has advanced in Romania is the logical one from an economic point of view. When there is a threat of insolvency of the public system, the overriding economic priority is to rationalize it in order to avoid the crisis. Moreover, if the eventual intention is to create a mixed system, reform of the first pillar can, through the savings it produces, wholly or partly finance the revenue shortfall associated with the introduction of the second pillar. Finally, if private pension funds are initially almost nonexistent (as in the case of Romania), their regulation, although important, can wait for completion of reform of the first two pillars.

Politically, however, the order in which these three related reforms are being addressed in Romania involves placing the most unpopular measures first, and the least controversial, last.

13.5 The Reformed Public System

The new public law passed by Parliament in December 1999, after more than a year of debate, reflects major substantive changes.[4] Political compromises had to be made in some areas to achieve passage. The law puts a halt to the most egregiously unsound practices of the prereform system, and moderately tightens others. Some of the improvements in financial sustainability will take the form of additional revenue; others, of reduced expenditure.

Most of the previous special regimes—notably, that pertaining to farmers—are integrated into the basic social security system. Two million self-employed persons, including farmers, are required to join the basic system. The biggest effect of this change is on the revenue side. The self-employed are required to declare their incomes, and to make social security contributions at the standard employer-plus-employee rate (35 percent) for normal categories of work. The income declared by a self-employed person cannot be less than 25 percent of the economy-wide average wage. If the self-employed declare, on average, 50 percent of the economy-wide wage, the potential increase in contributors is equivalent to an additional 1 million wage earners at the average wage.

Benefits are no longer an entitlement divorced from contributions. A new point system—modeled on the German system—replaces the old, open-ended benefit formulas. Workers accumulate points for each full year worked at the average economy-wide wage.[5] At retirement, the value of

4. The description that follows corresponds to the law that was passed in December 1999, and does not take into account subsequent modifications.

5. The system has a built-in ceiling. A worker may not accumulate more than 3 points per year, no matter how high his or her wage is. Contributors are similarly capped above three times the average wage.

the new retiree's points is determined according to a formula that ensures that a worker who has worked a standard full term of years at the average wage will receive a pension equal to 45 percent of the going average gross wage in the year of his or her retirement.[6]

The point system eliminates the excesses of the previous formula, which was based on the best, recent five-year average. It also replaces the financially unsound provisions of the prereform supplementary pension system, which is merged into the general system and, by and large, disappears as a separate calculation.

Expenditures will also be reduced by phased increases in the retirement age and a restriction of the conditions under which a worker is entitled to early retirement at full pension. In both areas, the final legislation reflects compromises between the government's more stringent proposals and parliamentary pressure to retain former privileges. The legal retirement age (sixty-two for men and fifty-seven for women in the prereform system) is raised by small increments over the course of thirteen years to sixty-five for men and sixty for women.[7] Furthermore, provisions for early retirement with full pension are moderately tightened, but continue to depend on the presumed difficulty of working conditions. The new law limits the right of workers in normal working conditions and in conditions of "particular difficulty" to retire early with full pension. The principal difference between the old and the new law is that there is a large reclassification of jobs, intended to reduce the proportion of workers in "special difficulty" and "particular difficulty" jobs.[8] The combined effect of these changes will reduce the minimum retirement age for new retirees by two years.

Provisions for invalidity benefits are also made moderately more rigorous. Beneficiaries of pensions for persons who are unable to work but who can take care of themselves—a category whose numbers had swollen in the previous decade—are required to be examined every six or twelve months, with a possible view to discontinuation.

The new law also created a new, public, autonomous body to collect contributions and distribute pensions. This is the National House of Social Insurance, a body governed by a board with representatives from unions, employer associations, retiree associations, and government, and run by a president appointed to a seven-year term by the prime minister. This effectively makes the social partners coresponsible with government for the operation of the public pension system.

6. When the system is mature, a standard work history will be thirty-five years for men and thirty for women.

7. The minimum work history required for full pension is also raised in increments, from twenty-five and thirty years (for women and men, respectively) to thirty and thirty-five years.

8. Many jobs in heavy industry—notably, steel making and metallurgy—are reclassified from the most difficult category to the intermediate category.

13.6 Universal Pension Funds

Four months after the new public law was introduced in Parliament, the government introduced a second pension law, the purpose of which is to establish a new mandatory system of private, individual pension accounts.[9] The Universal Pension Fund Law mandates that 10 percent of every worker's wage—roughly one-third of the average social security contribution—be reallocated to a personal account in the worker's name in a privately managed Universal Pension Fund. The worker's total contribution remains the same, but a portion of it is diverted to his or her personal account. The principal entity in the proposed system is the Universal Pension Fund, a civil company to which individuals adhere as members. It cannot have profits, declare bankruptcy, or otherwise act as a commercial entity. The purpose of the fund is to invest its members' contributions collectively, distributing all profits back to participants.

The law stipulates that each fund will contract a profit-making commercial entity—the Universal Pension Fund management company (fund manager)—which will invest the pension fund's assets and will derive a profit from this activity. In order to assure continuity and stability, the relationship between a fund and a fund manager will not be terminated on short notice. Thus the law provides for a close relationship between the Universal Pension Fund and the fund manager. The fund manager's investments are subject to close regulation and supervision by a special agency (below).

The fund manager will not actually hold the assets of participants. Instead, participants will have contracts with specially licensed depositories that will keep custody of the assets and serve as additional guarantees of securities. Depositories will have the legal duty to report immediately all transactions to the pension regulator. Although the fund manager and the Universal Pension Fund may have a significant link between themselves, the depository will be allowed no financial links with either.

The funds are based on a defined contribution (DC) principle. Thus, each member will have an account. The assets accumulated consist of mandatory contributions and of investment income attributable to those contributions. Participants select their initial preferred pension funds and may later switch, with some limitations, to other funds. This potential mobility and competition for members among funds is regarded as a major disciplinary measure. Because of the DC nature of the funds, no particular annual rate of return is guaranteed. However, the government assures that over the course of a lifetime of saving, participants will be provided upon

9. This section describes the provisions of the law as it was originally submitted to Parliament. Some provisions were changed in the emergency ordinance, but the structure remained essentially as it had been originally proposed.

retirement no less than their accumulated real contributions (i.e., a zero real rate of return). We discuss below in some detail the possible effects of this guarantee, and compare it with other forms of guarantees in different countries.

Upon retirement, the participant will deposit his or her accumulated saving in a licensed annuity company, which will convert the saving into annually paid retirement benefits. The specific terms of these (indexed) annuities will be determined by the regulator. Because the reform is designed to produce in one decade the first retirees who will receive benefits from their contributions to private funds, there is time to refine the necessary regulatory framework for annuity companies.

13.6.1 Identifying the Risks of Universal Pension Funds

The risks of privately managed DC pension funds can be classified as (1) portfolio and investment risk, (2) agency risk, and (3) systemic risk.[10]

Portfolio risk contains unsystematic or diversifiable risk and systematic or market risk. Rules pertaining to portfolio diversification should reduce the unsystematic risk and, to a lesser extent, the market risk (by diversification into other markets, including foreign ones). The principal objective of regulation is to ensure that *some* very risky and illiquid assets are eliminated from the range of eligible investment. The exposure to market risk (i.e., business cycles, episodes of asset price fluctuations, and inflation) can also be reduced by proper diversification, including investments in foreign markets; but some risk does remain.

Agency risk occurs when the interests of fund administrators and asset managers are not fully aligned with the interest of fund members. Asymmetric information between fund managers and fund members with regard to portfolio strategies as well as the low levels of financial sophistication of these members may lead to inefficiency and abuse. These risks depend in good part, as Rocha, Gutierrez, and Hinz (1999) point out, on the legal and governance structures of the pension funds.

In addition to the obvious risks of misfeasance, malfeasance, and theft of assets, there are more intricate risks of investments that reduce the return to members: investment in related companies, directed fee arrangements, kickbacks, and inflated overhead changes, for example. Transparency is a problem because of the multiplicity of fees, netting against investment returns, or bundling with other services.

Concerning systemic risks, although pension funds (unlike banks) do not confront short-term liquidity problems (such as runs on banks), they may be affected by a banking crisis that leads to a collapse of asset prices and the insolvency of some banks. There may also be negative spillovers from the insurance industry.

10. See Rocha, Gutierrez, and Hinz (1999).

13.6.2 Supervisory Authority: Pension Control Commission

A Pension Control Commission will be established as an autonomous public institution, the purpose of which will be to grant and withdraw authorizations and licenses (see below) and issue investment regulations. It will work in conjunction with the National Bank of Romania (BNR), the stock market supervision authority (CNVM), the insurance supervisor, and the National House of Social Insurance (the first pillar). The establishment of a new autonomous pension authority, instead of an enlargement of the supervisory jurisdiction of the above institutions to cover private pension funds, was preferred because of the unique aspects of these funds (e.g., long-term investments and annuitization) and the apparent weaknesses of some existing regulatory agencies.

The president of Romania shall appoint the chairman of the Pension Control Commission to a seven-year renewable term. Strict provisions ensure the independence of the chairman, and removal from office is restricted to extreme cases of dereliction of duty.

An important role of the Pension Control Commission is the monitoring and inspection of the funds, including review of financial reports and on-site reviews. Supervisors are required to monitor portfolio composition and other structural requirements in real time, and to provide financial data to members. The Pension Control Commission has authority to impose remedial and punitive sanctions, remove fund managers, and impose fines.

13.7 The Regulation of Private Pension Funds

The regulation of the private pension funds aims to ensure the security, stability, cost minimization, transparency, and sound investment decisions of these funds. Because pension funds typically are concerned with a larger portion of lower-income groups than are other financial institutions, a major crisis may lead to the creation of pockets of poverty among the elderly and to a demand for support and intervention by the government. This explains the motivation for tight prudential regulations and supervision of these funds.

The main components of the regulation of universal pension funds by the supervisory authority, as set in the law, are the following (see also Rocha, Gutierrez, and Hinz 1999):

- Licensing (authorization) criteria
- Governance rules
- Independent custodianship rules
- Disclosure requirements
- External audit/actuary requirements

- Investment regulations
- Guarantees
- Minimum capital and reserve requirements
- Regulations on costs and fees

Licensing (authorization) Criteria

The Pension Control Commission will grant and withdraw licenses for pension funds and fund managers. Regulations focus on the capital and professional credentials of the management company (which includes the professional standing of the parent bank or insurance company). Extensive capital and reserve requirements are imposed in order to limit entry to a relatively small number of entities, making in-depth oversight practical.

Governance Rules

Each pension management company must be exclusively dedicated to the management of one pension fund; it cannot delegate or subcontract its management functions. The quality of governance is addressed by rules on self-dealing, conflicts of interest, and the responsibilities and credentials of board members.

Independent Custodianship Rules

The independent depositary for assets described above are aimed at limiting agency risks. The fund manager does not directly hold legal title to the assets of the pension fund, limiting the opportunity for fraud.

Disclosure Requirements

These rules include methods of asset valuations (mark to market), the frequency of those valuations, and the distribution of information to fund members and to the general public. Thus, account statements are made available to members every quarter, and the Pension Control Commission will publish extensive and detailed information on the industry. Regulators have wide authority to verify the accuracy of financial statements issued by pension funds. Disclosure requirements enable participants to make informed choices and place competitive pressure on fund managers, although some argue that switching across funds in other countries was driven mainly by marketing efforts (Vittas 1998).

External Audit/Actuary Requirements

Auditors are required to report any problem to the control commission and are legally liable for failure to do so.

Investment Regulations

These rules aim at minimizing portfolio risks and, to an extent, market and agency risks. The law stipulates ceilings on the holding of several lim-

ited classes of assets, with emphasis on bank deposits, state bonds, publicly listed shares in Romania, and to a lesser extent, bonds and shares listed in major stock exchanges around the world. Regulations also place ceilings on holdings by the issuer, thereby disallowing a controlling interest by any pension fund.

Restrictions imposed on pension fund investments in certain asset classes have generated controversy. Some Organization for Economic Cooperation and Development (OECD) countries do not impose restrictions by asset class and follow the "prudent-person" rule, which requires that investment decisions be diligent and satisfy the goal of risk diversification. Rocha, Gutierrez, and Hinz (1999) cite evidence that real returns of pension funds in prudent-person environments were higher than those of funds operating under quantitative restrictions on asset classes. The similarity of investment portfolios of pension funds in Chile, which restrict member choice, was cited by Feldstein as one reason for their high costs.

It seems, however, that tight quantitative investment restrictions in Romania—a transition economy with underdeveloped markets and regulatory structures—are justified, at least initially. The quantitative approach (termed "draconian" by some) is simple, easy to police, and greatly reduces uncertainty for all parties. These restrictions can be relaxed over time as markets and the legal framework improve.

The same argument applies to the rule against multiple portfolios. Although a single portfolio significantly reduces the degree of choice among the risk-return combinations, which typically differ across age groups, the additional costs associated with multiple portfolios seem to outweigh the benefits in countries such as Romania, the bulk of whose citizens cannot be expected to make informed decisions on the compositions of their portfolios.

Guarantees

Like some other countries that have introduced a second mandatory pillar, Romania offers participants a zero real rate of return on their contributions. This is similar to Hungary (which offered a zero real rate of return to workers below the age of forty and a 4 percent real rate of return for other workers) or to Switzerland (which guarantees a 4 percent *nominal*—about a 2 percent real—rate of return). This guarantee is backed by required minimum reserves and equity imposed on the pension manager and by a central guarantee fund. In case of insolvency of the manager and the central guarantee fund, there is an explicit guarantee from the government budget.

The provision of guarantees raises two basic questions. First, what is the probability that the guarantee will be called, and is the capital backing adequate for this purpose? Second, to what extent does the guarantee in-

troduce a moral-hazard problem (i.e., distortions of the fund managers' investment decisions)?

In Latin America and Central Europe, most countries have provided guarantees in the form of annual minimum returns, expressed in relative terms. Thus, a minimum return is defined relative to the average return of all pension funds, or relative to a broader market benchmark. The benchmark is expressed in either real or nominal terms. In Chile, for example, each fund must achieve a minimum return equal to 50 percent of the average real rate of return of the industry. In Argentina, funds must achieve 70 percent of the average nominal return of the industry (Vittas 1998). These relative guarantees attempt to deal primarily with inefficient (or fraudulent) fund managers. They induce, however, a visible moral hazard in the form of a "herding" effect. That is, portfolios tend to cluster around the portfolios of the large and leading funds. As a result, the choices available to members are further limited (in addition to the limits imposed by ceilings on asset classes).

A related moral hazard concerns the extent to which private capital is put at risk in relation to the guarantees. If the assets of the fund manager (or the parent company) are not affected *before* the government guarantee is called, a negative agency risk is introduced. Although calculations indicate that this is not a serious problem (see below), it is an issue on which Romanian law may have to be modified.

Absolute guarantees, such as in Romania (or Switzerland and Hungary), defined as a minimum return over the working lifetime of members, introduce a measure of *intergenerational pooling* similar to that found in defined benefit (DB) systems. This seems to be a major advantage of the Romanian system.

The guarantee of a zero real return is based on detailed calculations and simulations. Baseline calculations assume an 8 or 10 percent contribution rate to the second pillar. With a zero-return benchmark, annuity benefits as percent of GDP will rise from 0.03 percent in 2025 to 0.77 percent in 2040 for an 8 percent contribution rate; and from 0.04 percent to 0.96 percent for a 10 percent contribution rate. To evaluate the risks entailed by the guarantees, calculations have used time series data on equity and bond returns in France from 1870 to 1998. Obviously, application of French time series to a transition economy such as Romania's requires caution. Emerging economies are considered to have higher risks and higher expected returns than mature economies. For cumulative processes over long periods, such as lifetime investment returns, the higher returns can be expected to dominate the higher short-term risks. Thus, we believe that our calculations are, on the whole, conservative.

The average annual return on equities in France since 1870 has been 4.5 percent (standard error 14.6 percent). The average annual real return on bonds since 1950 has been 2.1 percent (standard error 5.3 percent). Simu-

lations have shown that the probability of exceeding a zero real rate of return on equities over a twenty-year holding period is 91 percent, and over a thirty-year period (approximately) 100 percent. The numbers for bonds are similar.

Statistical tests show that the time series of returns on equities and bonds are stationary and have zero serial correlation. Consequently, a large number of samples have been constituted from random time series of returns with the appropriate parameters. The simulations are based on a 50–50 portfolio of equities and bonds. The difference between each sample's outcome and the baseline (zero real return) provided the gains or losses that must be covered according to the guarantees.

Figure 13.1 displays one such calculation of gains and losses as a percentage of GDP (in 1996). The heavy line (Hamayon 1998, 6) gives the baseline of zero return.

Each line represents a different possible growth scenario, reflecting successive drawings from the underlying distribution of returns. It is seen that an overwhelming number of runs (samples) exceed the baseline (i.e. the guaranteed zero return). Figures 13.2 and 13.3 provide estimates of bypassing the guaranteed threshold. They display a histogram of the excess (shortage) over the guaranteed zero return, as a percentage of GDP (fig. 13.2) or of the rate of return (fig. 13.3), of sample returns. The right-hand axis applies to the cumulative probability represented by the downward-

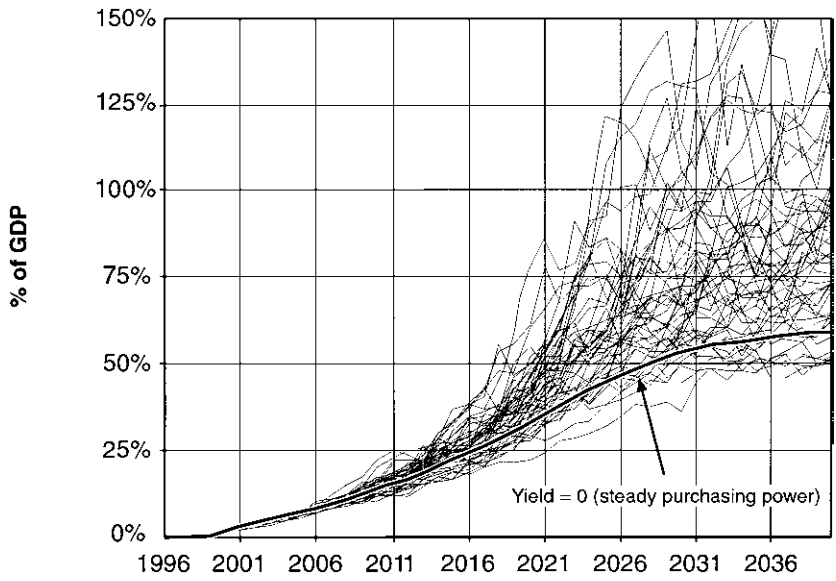

Fig. 13.1 The variability of the growth of private pension funds as a percentage of GDP (normal conditions)

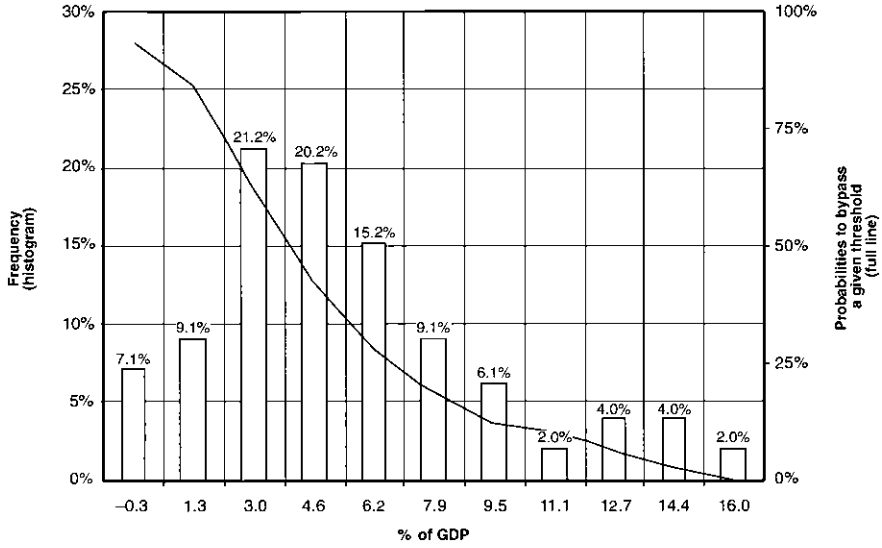

Fig. 13.2 Distribution of actualized gains and losses from 2025 to 2040 (10% contributions to private funds)

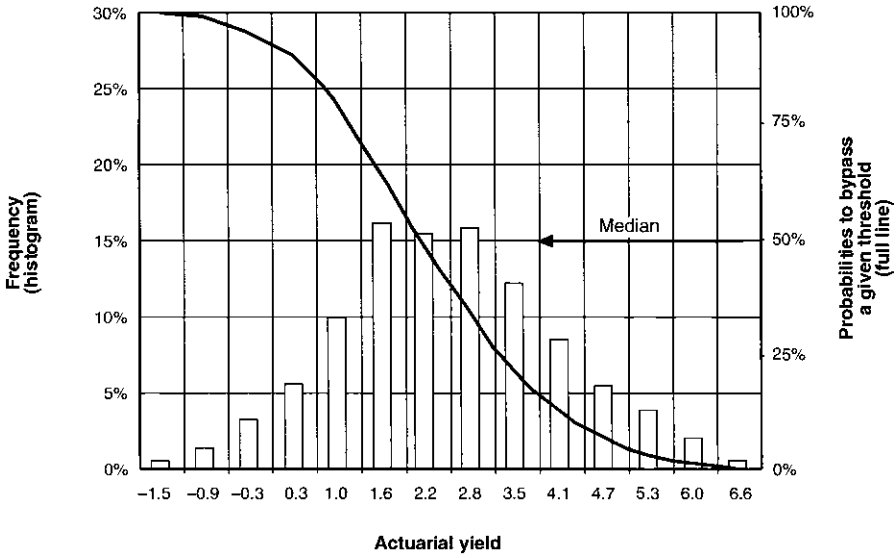

Fig. 13.3 Distribution of generations' actuarial yields of (10% contribution to private funds)

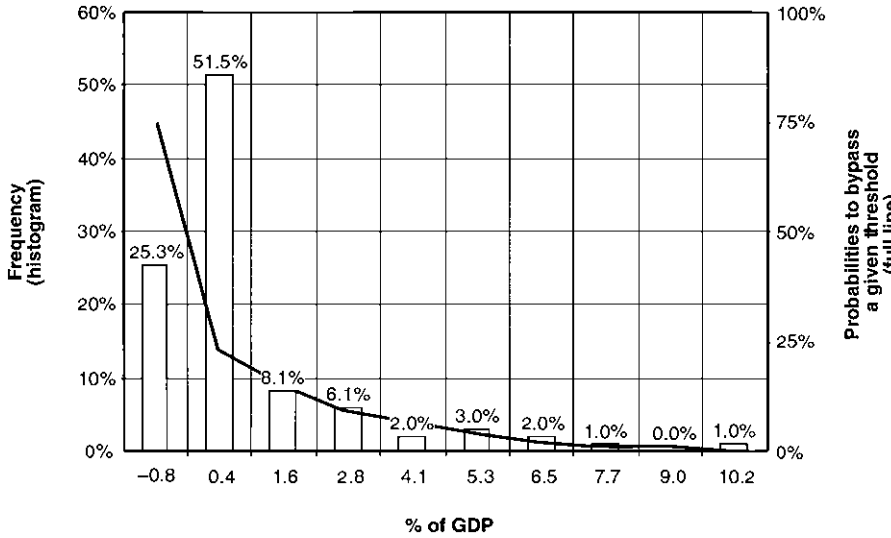

Fig. 13.4 Effects of ten-year crash (beginning in 2010) on distribution of actualized gains and losses from 2025 to 2040 (10% of contributions)

sloping line. Thus, with a 10 percent contribution rate, about 90 percent of the 100 simulations yielded a positive return, and 50 percent of the samples gave a return higher than 2.2 percent.

A more severe scenario has also been calculated. Discarding the zero serial correlation assumption, returns from the year 2010 to 2020 have been sampled from only the *negative* portion of the frequency of returns, reflecting a market-crash scenario lasting for ten years. Under these circumstances there is a 25 percent chance that the guarantee will be called, although it will be less than one percent of GDP (see figs. 13.4 and 13.5). Based on these calculations, it seems reasonable that the central risk fund will be adequate to back even extremely adverse circumstances.

Minimum Capital and Reserve Requirements

A significant share capital (10 million euros) is required and may not be encumbered. A portion of the share capital (5 million euros) must be kept permanently in cash in Romania. Fund managers shall be required in addition to contribute to the National Guarantee Fund. These capital requirements seem excessive. In DC funds, there is no rationale for holding capital at these levels, and such a requirement imposes a significant cost that will be shifted to members. Presumably, the capital requirement has been introduced as a screening device to reduce agency risks associated with unreliable fund managers.

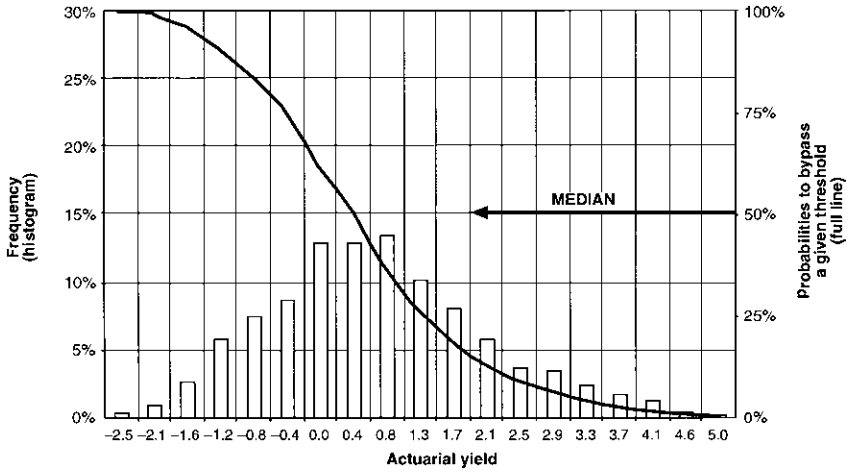

Fig. 13.5 Effects of ten-year crash (beginning in 2010) on distribution of generations' actuarial yields (10% of contribution)

Regulations on Costs and Fees

Two types of commissions are allowed: a percentage of contributions (front-load) or of the value of net assets. A ceiling (1.0 percent) has been imposed on the latter type, whereas the former is expected to be set competitively. The restrictions imposed, although they tend to cluster expenses at the allowable maximum, were intended to protect relatively uninformed members who are unable to evaluate alternative multidimensional pricing schemes.

13.8 The Budgetary Implications of the Public and Private Reforms

13.8.1 The Saving Generated by First-Pillar Reform

A move from a PAYGO system to a funded system, whether partial or complete, necessarily entails a transitional deficit while existing liabilities under the previous system are progressively paid off. How that deficit is financed has a major influence on the economic effect of the reform.

In the Romanian case, the principal source of financing for the transitional deficit is expected to be saving from the reform of the public system. We shall evaluate this source, then report projections of the net effect on the budget of public reform and private funding.

Our analysis begins with an estimate of the saving to be expected from tightening the conditions for early retirement, tightening benefit formulas, and increasing the retirement age. We measure these in a succinct way by

comparing the present discounted value of the liabilities—to persons who were alive in 1999—of the old and the new public system.

The computation adds up the expected lifetime payments to which persons alive in 1999 were entitled at that point. It does not include future entitlements that young persons in 1999 could have expected to accumulate during the remaining years of their working lives; nor does it include the possible entitlements of future entrants to the workforce.[11]

Table 13.2 tells the basic story. In 1999, the total implicit liabilities of the prereform public system, discounted at 5 percent, were 140 percent of GDP. The total implicit liabilities of the reformed system, had it gone into effect in 2000, would have been 106 percent of GDP at the same discount rate, or 24 percent less than the prereform liabilities.

It is worth noting that, because the reform does not alter the state's liabilities to existing retirees (who have already taken advantage of whatever formulas and provisions were available), the entire amount of those savings must come from a reduction of liabilities to working people. One can see from table 13.2 that the discounted total liabilities to working men and women went from 67 percent of GDP to 38 percent of GDP. Tightening reduced those liabilities by a factor of 43 percent.

The reform is also expected to increase the number of contributors paying social security taxes. One important source of the increase is the incorporation of an estimated 2 million farmers and other self-employed persons into the basic system. If one assumes that the average new contributor declares half of the average wage, the enlargement is equivalent to an increase of 1 million contributors at the average wage, or 19 percent of the 5.2 million contributors in the system at the end of 1998. It is estimated that it will take four years for these new contributors to integrate fully into the system. Eventually, the new contributors also become new beneficiaries; the fact that they enter first as contributors implies that there is an increase in the present discounted value of revenue into the system.

In addition, the combination of the first- and second-pillar laws creates strong incentives for compliance on the part of the population at large. The first-pillar law establishes a direct link, which previously did not exist, between future pension benefits and lifetime contributions. The second-pillar law expands on this by treating social security tax payments and contributions to each worker's individual account symmetrically. If the tax is not paid, the corresponding individual account is not credited. It is expected that a worker will feel a sense of ownership of his or her individual

11. To the extent that workers could be expected to continue accumulating entitlements beyond 1999, the computation underestimates the total effective liabilities of both systems. What is important for our purposes is that we measure the implicit liabilities of the pre- and postreform systems in a comparable matter. Simulations from 1999 forward with the Hamayon, Legros (1998) model are used to estimate the implicit debt of the old and new systems. See de Menil, Hamayon, and Seitan (1999) for further details.

Table 13.2 **Implicit Debt as Percentage of GDP of the Prereform and Postreform Public Pension System, 1999 (5% real discount rate)**

	Men			Women					
	Already Retired	Working	Total	Already Retired	Working	Total	Survivors	Disability	Grand Total
Prereform	19	30	49	31	37	68	11	12	140
Postreform	19	17	36	31	21	52	9	9	106

Sources: de Menil, Hamayon, and Seitan (1999) and Hamayon (1999).

account, and will therefore pressure his or her employer to pay on time. It is reasonable to assume that these two changes together will, over time, reduce evasion and further increase the ratio of the contributor base to the active population. We estimate that Romania's currently high evasion rate will converge slowly to the European Union (EU) average, thus bringing about a gradual increase in both the contributor base and the number of beneficiaries.

13.8.2 Simulations of the Net Budgetary Implications of the Combined Reforms

The replacement ratio for full pensions mandated by the new pension law is 45 percent of the gross wage (which is high, but well below the potential replacement rate, under conditions of full indexation, of the old system). The equivalent average replacement ratio for all pensions is 35 percent (including survivors and disability). We have estimated that at the end of 1999 the ratio of contributors to beneficiaries (including farmers) was roughly 1. Under those conditions, a 35 percent (including farmers) replacement ratio would require a 35 percent social security tax on net wages. The actual effective average tax at the end of 1999 was 34 percent. The integration of the farmers and other self-employed persons should, in a few years, bring the ratio of contributors to beneficiaries to 1.22. If one adds to that measure the reduction in the number of beneficiaries through early retirement that the tightening of retirement provisions is expected to produce, as well as a reasonable reduction of the evasion rate, it seems clear that the provisions of the new public law should, in time, produce enough saving to ensure its medium-term sustainability on a stand-alone basis.[12] This begs the next question, however: Is the additional saving enough, and is it realized quickly enough, to finance the introduction of the second pillar? The answer to this question has been sought in a series of simulations of combined first- and second-pillar reform, under various economic, demographic, and policy assumptions.

Model and Assumptions

The model used for these simulations is a medium-term model developed by Stephane Hamayon and the Quantix consulting firm (Hamayon and Legros 1998), which focuses on the relationships between demographic trends and the rules and provisions of the public retirement system. It approximates the age distribution of the working-age population with density functions that can be projected many years forward, and modified to take account of changes in the birth rate and life expectancy.

12. The increase in the earliest possible legal retirement age is expected temporarily to freeze new entries into retirement. Even if this effect is partially compensated by some retirements in anticipation of the law, the effective number of beneficiaries could fall by 100,000 in the first two years. The reduction of evasion is likely to be modest, if first-pillar reform is not accompanied by second-pillar reform.

Entry into retirement is modeled according to the provisions of the public law in effect. The benefit formulas of the law are used to relate retirement benefits to past wage histories. Economic production, the movement of real wages, and the evolution of the evasion rate are exogenous inputs into the model.[13]

The model is used to examine the short- and medium-term effects of joint implementation of the government's public and private pension reforms, beginning in January 2001. The following economic and demographic assumptions are made: The life expectancy of men and women is assumed to continue rising at a slow rate. The net reproduction rate is assumed to reach a low of 1.7. Real output and real wages begin flat, and converge at a 4 percent rate of growth. Evasion converges slowly to West-European levels. Our focus will be on the resulting simulations of the growth of the private pension funds, on the one hand, and the budget of the public pension system, on the other.

The crucial policy parameters in these simulations are the provisions of the reformed public system, the magnitude of the diversion to private funds, and the nature of the phasing-in of this diversion. We examine the implications of a switch to the new public law, as described above, and of a 10 percent diversion, which is mandatory for all workers with more than twenty years until retirement and optional for workers with ten to twenty years until retirement. We assume that 35 percent of the workers given the option choose the diversion.[14]

Table 13.3 documents the magnitude of the flows into private pensions. They begin in 2001 at 0.57 percent of GDP, and rise over twenty-five years (as contributions progressively become mandatory for the entire workforce) to 3.56 percent. Twelve years after the reform, the accumulated contributions and compounded growth raise the total assets of these funds to 20 percent of GDP. Total assets eventually level off at 72 percent of GDP.

There is a modest transitional deficit, but it ends, and becomes a surplus after four years. It begins at 1.91 percent of GDP in the first year and diminishes progressively. In the first year, it is greater than the amount of the funds being diverted to private accounts. This is a reflection of the unbalanced initial conditions prior to the reform, and the fact that the saving introduced in the first pillar materialize only progressively.[15] The saving continues beyond the point, in the fourth year, at which it entirely

13. The simulations thus do not take account of potentially important feedbacks from the reforms themselves to real economic evolutions. For a description of the model, see Hamayon and Legros (1998).

14. Hungarian and Polish experiences suggest that this is a reasonable number.

15. In the first instance, the provisions of the new law that reduce the number of new retirees and limit their pensions affect only marginally the total volume of payments to all outstanding retirees. On the other hand, the provision that makes indexation of existing pensions to the consumer price level mandatory immediately eliminates what had previously been a constant annual source of erosion. On the revenue side, the integration of farmers and other self-employed persons takes four years to become complete.

Table 13.3 **Accumulation of Private Pension Funds, and the Effect on the Social Security Budget of the Simultaneous Reform of the Public Pension System and Introduction of Private Pension Funds**

Date	Net Flows into Private Funds	Capitalization of Private Funds	Surplus/Deficit of Social Security Budget (% of GDP)
2001	0.57	0.57	−1.91
2002	1.26	1.84	−1.65
2003	1.41	3.25	−0.87
2004	1.59	4.83	0.05
2005	1.74	6.55	0.74
2006	1.92	8.43	1.49
2007	2.11	10.50	2.29
2008	2.31	12.75	3.00
2009	2.46	15.15	3.59
2010	2.60	17.67	4.07
2015	3.03	31.47	5.02
2020	3.32	45.29	4.64
2030	3.56	68.11	3.95
2040	3.55	71.83	2.39

Source: Simulations with the Hamayon and Legros (1998) model.

Notes: Ten percent of wages allocated to personal accounts, participation mandatory for workers with fewer than twenty years to retirement, optional for those with fewer than ten years.

pays for the diversion of contributions to the second pillar. Saving generates a positive surplus in the social security fund that lasts for the full fifty years of the simulation. It rises to 5 percent of GDP in the fifteenth year of the reform, and then slowly declines.

In summary, saving in the public pension law over time more than pays for the diversion to private pensions. The saving does not become operative immediately, however. There is an initial three-year period during which the budgetary costs of diversion to the private system are added to the residual deficit of the public system. These results are not very sensitive to changes in demographic assumptions or to reasonable changes in the speed of reduction of evasion. They are affected significantly by the rate of growth, the rate of return, the magnitude of the draw-down to private accounts, and the timing of its introduction.

13.9 The Economic Effects of Pension Reform

13.9.1 Reduced Labor Market Distortions and Evasion

A major argument for a fully funded, mandatory pension system as a second pillar for retirement income is that it will have a positive effect on efficiency and growth. This effect can be achieved by a reduction in labor

market distortions created by the first pillar of mandatory, PAYGO, defined benefits, and through an increase in the national saving rate and the capital stock, and consequently in income per capita. Which of these economic effects can Romania's joint first- and second-pillar reforms be expected to produce?

In the Romanian case, the labor market effect is qualitatively different from what it is in other countries. The simulations in table 13.3 show that, after four years, the 1999 reform of Romania's public pension system more than pays for the permanent diversion of 10 percent of wages to individual private accounts. If existing workers view their contributions to private accounts as benefits rather than as taxes, the combination of the two reforms can be said to reduce the effective tax on wages of existing contributors by 10 percent. We have shown above, however, that the Romanian reforms include the integration of a substantial number of new contributors—largely farmers—who were previously paying very little tax. The net result of the reforms from the point of view of taxes is that they equalize the effective tax on existing and new contributors at a 25 percent rate. The average tax rate is unchanged, but a distortionary difference between the two is removed.[16] There is presumably a gain in efficiency, but it is difficult to estimate, and is qualitatively different from the efficiency gains of across-the-board reductions in wage taxes estimated in other studies.

A further remark is in order. The simulation in table 13.3 shows that the combined reforms produce a rising surplus in the public pension fund after the third year. If that surplus were used to pay for an across-the-board reduction in Romania's very high social security taxes, additional efficiency gains would likely result.[17]

The simulation in table 13.3 assumes that the percentage of the population covered by social security in Romania will increase from the current 63 percent to 90 percent, due to the introduction of the point system and the creation of the private pension system. Clearly, funded DC plans are less likely to be evaded because they closely link benefits to contributions. The magnitude of this effect, however, is difficult to estimate. If workers are myopic (contrary to the preceding discussion), they may continue to evade contributions because they will be unable to access their mandatory saving for many years. When investment returns are low, workers may es-

16. Existing contributors, who were paying 35 percent on average before the two reforms, perceive that their social security tax has been reduced to 25 percent. New contributors, who were previously paying roughly zero, perceive that their social security taxes have been increased to 25 percent (the new 35 percent contribution, minus the 10 percent diversion to a private account).

17. Feldstein and Samwick (1996) have estimated that a 10.4 percentage point reduction in the U.S. payroll tax increases steady state GDP by one percent annually. Kotlikoff (1996) finds that a similar reform leads to a 4 percent gain in consumption. Comparable tax reductions might be expected to lead to a greater decrease in dead-weight loss in Romania, because of its higher effective tax rates.

pecially be tempted to evade, preferring to consume an investment in housing or durables. On the other hand, the relatively low coverage rate in Romania is, at least in part, due to legal avoidance rather than evasion. (The use of civil contracts is an example.) This is why we think the Hamayon estimates are realistic.

13.9.2 Augmented Retirement Age

Another source of inefficiency of PAYGO, DB systems is that political considerations (particularly during periods of unemployment) lead to excessively early retirement ages with generous benefits (high replacement rates). One can expect that fully funded DC plans will mitigate this effect, because if the worker retires early the costs are internalized via a reduced pension. Thus, for example, if Romania's reforms eventually lead workers to raise their retirement ages by at least four years, and if leisure is worth, on average, half the wage during that period, then the supply of labor and GDP (assuming constant marginal productivity of labor) are both raised by almost 10 percent and welfare by 5 percent.

13.9.3 Increased National Saving

Perhaps the most important economic effect of a pension reform program like that of Romania is its effect on national saving. It is well known that the effect on national saving of a switch—partial or total—from a PAYGO, DB system to a private, funded DC system depends on how the change is financed. If it is completely deficit financed, the introduction of the funded system has no effect on national saving because the additional saving going into the private system is offset by additional dissaving in the state budget. We have shown above that, in the Romanian case, the transitional deficit is fully financed, after the first three years, by saving realized in the public system. It follows that, in our case, once the first three years have passed, mandatory, national saving is increased by the full amount of flows into the private funds.[18]

Of course, mandatory saving may not increase total national saving if individuals find ways to offset it against other voluntary saving. One may speculate about the size of this "crowding-out" effect, but presumably it is quite small in a transition economy such as that of Romania, where opportunities to accumulate capital and information about them are limited for a substantial part of the population.

According to the simulation reported in table 13.3, the capital stock accumulated in the funded system is about 70 percent of GDP after forty years. Using standard calculations of the contribution of capital and labor

18. We have seen in the Hamayon simulations that the combination of public and private reform generates a surplus in the state's social security fund. If that surplus is allowed to accumulate, it constitutes additional national saving. We assume here that it is used to finance future reductions in social security taxes.

to the growth rate of GDP, we have shown elsewhere that the establishment of a funded pension system in Romania will increase the growth rate of output by almost one percent per year.[19]

13.10 Universal Pension Funds and the Capital Markets

A major concern regarding the implementation of a mandatory, fully funded pension system in Romania is the ability of the system to provide stable and adequate retirement benefits to covered workers. Critics of the pension reform have argued that because of the volatility of equity and bond markets and the repeated episodes of high inflation, there is concern that a catastrophic collapse of capital markets might wipe out the real value of accumulated balances and leave retiring workers with inadequate income.

In response to this criticism it should first be pointed out that the exposure of retirees to market risk depends on the relative sizes of the first (public) and the second (private) pillars. Contributions to the first pillar are only weakly correlated with market returns, and the second pillar is expected to provide at maturity 30–50 percent of total benefits. Thus, the multipillar structure tends to dilute the impact of market risks.

The experience from similar reforms around the world provides some confidence in the successful establishment of multipillar structures in economies similar to Romania's. After Chile's abolition of the first pillar (1981), several Latin American countries implemented multipillar reforms: Argentina (1994), Colombia (1994), Bolivia (1997), El Salvador (1998), Mexico (1997), Peru (1993), and Uruguay (1996). More recently, several transition economies—led by Hungary and Poland—have successfully implemented mandatory, fully funded, privately managed pension funds complementing a public, PAYGO first pillar. Risks can be further reduced by allowing investment abroad.

The introduction of a private second pillar in a country such as Romania can be expected to have significant positive externalities on capital markets. The establishment of an independent, pro active pension supervision authority with wide jurisdiction should have, if properly implemented, positive effects on other existing regulatory agencies (e.g., in banking, insurance, and the stock market).

The establishment of privately managed pension funds can be expected to lead to the entry of major global insurance firms and investment banks into Romania, as was the experience in Poland. These firms have a reputation for following solid investment and auditing practices, which will positively affect the practices of local firms.

19. See de Menil and Sheshinski (1998). This calculation assumes that there is no crowding-out of voluntary private saving. Some of the issues addressed throughout section 13.9 are discussed in de Menil (2000).

13.11 Conclusion

Throughout Eastern Europe, the collapse of communism revealed an incipient crisis in the provision of social security. Actuarially unsound retirement systems that were incapable of surviving in other than a command economy were threatened with collapse. Both the critical condition of retirees and the burden of pension payments on state budgets made fundamental changes in the existing PAYGO systems a priority for reform. In a number of countries, a desire to balance the promises of a state redistributive system with the potential benefits of the growth of capital markets led to the design of mixed, multipillar systems with private, funded components. The combination of the saving achieved through the tightening of the public system and the impetus to capital markets of the introduction from private pension funds was expected to raise growth and improve economic efficiency.

Romania, the second largest country in the region, is poorer than its neighbors, and has been slower to reform. Although its benefits were less (both in absolute terms and as a percentage of GDP) than elsewhere, its pension system was equally as bankrupt. For the first seven years after 1989, instead of tightening the provisions inherited from Ceausescu, successive governments relaxed controls on benefits and responded to the melting-away of the contributor base by raising taxes. By 1996, the pension system was in full crisis. The government formed by the parties that won the elections at the end of that year made pension reform a priority. It focused first where the need was most critical: closing the deficit by fundamentally restructuring the PAYGO system. After a three-year process of debate and negotiations, Parliament passed a new law that scaled back the present discounted value of the entitlements of existing workers by 43 percent, and legislated a 19 percent increase in the contributor base. Several months later (November 2000), the government passed, by emergency ordinance, legislation to create a mandatory, second-pillar system of private, funded pensions. The government that emerged from the elections later that month withdrew the emergency ordinance and set up a commission to review its pension reform strategy. At the present writing, it is unclear what the next step will be.

The second-pillar design imbedded in the emergency ordinance passed in Romania in November 2000 is notable for some distinguishing characteristics. For instance, the state guarantee that is built into the system is extended to the individual beneficiary, not to the fund; thus it entails less moral hazard.

The success and safety of any future system depend critically on a central institution, the Pension Supervisory Commission. The authority and effectiveness of this independent, autonomous professional body, responsible for licensing and regulating private fund managers, is decisive. If the

commission succeeds in remaining above politics and enforces the prudential regulations imbedded in the law, private funds can increase future retirement benefits and enhance the liquidity, transparency, and safety of Romanian capital markets.

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Comment on chapters 11, 12, and 13

John McHale

Over the last decade, reforming politicians in post-communist countries have often said their goal is to "return to Europe," meaning, I suppose, that they wish to adopt the economic institutions and policies of the successful countries to their west and eventually join the European Union (EU). Reading these excellent papers on fundamental pension reform in three post-communist countries, one cannot help but be struck by the fact that in this area, all three are leapfrogging their established market-economy neighbors. On this question, we are looking east to see what we can learn.

With three countries and limited space, I will not try to comment in any detail on the individual papers. Instead I will briefly reflect on the information given that helps answer three big questions: What did these countries do in the area of pension reform? Will the reforms be to their overall benefit? and, How, politically, did they manage to implement the reforms?

Although there are important differences in the details, it is striking that each of the three countries has adopted or plans to adopt a version of the three-pillared retirement income system that has been advocated by the World Bank. The first pillar is a restructured pay-as-you-go (PAYGO), defined benefit (DB) pension, with substantially reduced costs and tighter links between contributions and benefits. The second pillar is based on the diversion of a portion of contributions to individual investment accounts. The third pillar is voluntary (tax-favored) saving. Not surprisingly, it is the second, Chilean-style pillar that is receiving the most attention, because it involves the most radical break with the past. Although it involves only part of the total mandatory contributions, the shares of covered wages flowing into the second pillar are (or will be) significant: 7.3 percent in Poland, 6–8 percent in Hungary, and a planned 10 percent in Romania.

It is worth emphasizing that changes to the *first pillar* have also been

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quite radical, with each country attempting to make contributions seem less like taxes by strengthening the links between contributions and benefits. Poland appears to have gone the farthest along this dimension, adopting a Swedish-style notional defined contribution (NDC) system (but without a flexible retirement age). The Hungarian reforms "gradually eliminate some of the redistributive elements in the formula," although the details are not spelled out in chapter 12. Finally, Romania (chap. 13) has moved to a German-style points system, in which "workers accumulate points for each full year worked at the average wage," instead of a system with a benefit based on the best five earning years in the ten years prior to retirement.

Will the reforms make these countries better off? The answer to this question depends, of course, on complex judgments about equity between and within generations; but it is helpful to look for evidence provided in these papers on two important sub-questions: Will the reforms increase economic efficiency? and, How will the reforms affect retirement income security?

Reforms to the first and second pillars are likely to have a significant impact on labor market distortions. Exceptionally high labor tax rates,[1] weak links between taxes and benefits, low average returns on PAYGO contributions, and extensive opportunities for (low-productivity) informal-sector work, all indicate that the distortions created by the old system were large. Working-age labor supply was distorted, unemployment rates were pushed up by large tax wedges and high net replacement rates,[2] and there was a strong bias toward early retirement. Elementary economics suggests that, given the initial conditions, even modest reforms should lead to large efficiency improvements.

The impact of second-pillar reforms on capital market distortions is less obvious. A reasonable starting assumption is that national saving is inefficiently low (say, because of capital income taxation), so that a second-pillar induced increase in saving will lead to a net gain. In other words, the decreased consumption today is more than offset in present value terms by the increase in output (and thus consumption) in the future. However, will adding a funded pillar actually increase saving? The well-known problem is that the diversion of contributions to individual accounts leaves a revenue shortfall for funding the pensions of the presently retired. If this shortfall is made up by domestic borrowing, then saving will not increase.

The direct impact on saving of diverting contributions to the second pillar is considered most explicitly in the papers on Hungary and Roma-

1. Just prior to the reforms, contributions to the pension system alone accounted for 45.0 percent of covered wages in Poland, 33.0 percent in Hungary, and 37.5 percent in Romania (having risen from 28.5 percent in January 1999).

2. The three countries had similar unemployment rates in 1998: 10.4 percent in Poland, 9.1 percent in Hungary, and 10.3 percent in Romania.

nia, both of which include informative simulation evidence. In Hungary the early increase in the PAYGO deficit is about 0.8 percent of gross domestic product (GDP), which is quite low given that 50 percent of the labor force are diverting 6 percent of covered wages. Rocha and Vittas provide simulation information on the net (direct) impact of the combined reforms on saving over time, adding together the deficit in the first pillar and the increased net saving in the second pillar; this reaches about 2 percent by the end of the decade. This is not quite the right calculation, however, because what matters for the impact on saving is the *increase* in the first-pillar deficit, not its absolute size.

The Romanian case is interesting in that the previous PAYGO system cuts are sufficiently large, and that the overall balance is projected to be in surplus by 2004. Again we must ask if this is the right number to examine. Without a diversion to the second pillar, the PAYGO pillar would turn to surplus even earlier. On the other hand, large cuts to first-pillar spending might not have been feasible without the promise to introduce a second pillar.

The Polish solution to transitional funding is to use privatization revenues. It must be remembered, however, that those privatization revenues could have been used to bring down the budget deficit and boost national saving directly. There is (to use the jargon) an opportunity cost to using privatization revenues to cover the transition. Thus privatization revenues, although politically useful in filling the gap, do not remove the need to raise taxes or cut spending if saving is to rise over the transition relative to the no-reform benchmark.[3]

A second, often-discussed (but difficult to quantify) benefit of introducing a funded pillar is that it will spur the development of capital markets, in part because it forces the government to establish carefully a system of prudential regulation for financial intermediaries. A more well-developed financial system should increase saving by raising expected return,[4] lead to a better allocation of capital, and reduce the vulnerability of the economy to domestic-banking and foreign-funding shocks. This effect is probably quite important for countries in which financial markets are poorly developed, a category that surely includes all of the post-communist economies. There is a danger, however, that the political perception of governmental responsibility for the performance of the funded pillar that it created—and the fact the government is offering limited investment return guarantees—will lead to an overly heavy regulatory hand. As described in the

3. From a national-saving point of view, a free giveaway of ownership stakes in former state enterprises would be even worse, because recipients will probably raise their consumption in response to this windfall.

4. More developed financial markets can also reduce saving if they reduce liquidity constraints by making it easier to borrow.

papers, the regulatory systems are still very much works in progress. It is not self-evident that all the induced regulation will be for the best.

Next, I turn to the impact of reform on the security of retirement income. Overall, my judgment is that the multipillared system does make retirement income more secure—there is "security in diversity." Of course, the diversion of contributions to the second pillar exposes workers to investment risk and charges, which eat into returns. Against that, however, must be weighed the very high political risk in the unreformed PAYGO systems: that is, the risk that the parameters of the retirement benefit and contribution formulas will be altered by politicians. Even the limited reforms to benefit formulas pursued thus far by the major industrial economies have usually had quite large impacts on the present value of an average worker's expected stream of benefits. The risk of benefit cuts is high when current benefits are costly, when the system is in deficit, and when demographic trends will raise the overall cost (and deficit) under existing rules. As outlined in the three papers, the old systems have faced all these problems to varying degrees. On balance, then, the diversification advantages provided by the multisource provision of retirement income, especially when combined with sensible regulation and limited guarantees for the funded pillar, should allow workers to look forward to more secure retirements.

This brings me to the last of the three questions: How were these countries able to push through such radical reforms? Although politics of reform differed among the three countries, it seems that the perception of political risk under the old system was a common element. Workers simply did not believe that they would receive the benefits that were being promised under the old DB rules. During the 1990s, they saw how benefit formulas could be made more austere through formula changes and limited inflation protection—dramatically so in Romania. This made them receptive to alternatives, especially when the alternatives involved having the concrete ownership of individual accounts that would be difficult for politicians to take away. The perception of political risk was sufficiently high that it allowed reformers to overcome the usual obstacles of the transition cost and the distributional churning of fundamental reform. (The refusal of the new government in Hungary to follow through with the planned increase in the contribution to the second pillar is a reminder, however, that political risk is not entirely absent in a funded system, either.)

A remarkable feature of the reforms in Hungary and Poland is that participation in the funded pillar was voluntary for large sections of the population. Essentially, workers are offered a type of asset swap: They can exchange part of their eligibility in the DB system for the right to divert part of their contributions to the funded pillar. By appropriately choosing the

terms of the swap, the government can take advantage both of the higher return in an investment-based system and of any perceptions of political risk. In Hungary, for example, switching leads to the loss of approximately one-fourth of already acquired rights. Nevertheless, half the Hungarian labor force has made the switch. (In Poland, 10.5 million of the eligible 11.5 million have switched). Voluntary diversion also allows the government to take advantage of a free rider problem for those being offered the opt-out. The lost revenues to the PAYGO system by the diversions will probably have to be made up by tax increases or spending cuts, which will hurt current working generations. The burden of these fiscal adjustments will fall broadly, however, landing on both those who do and those who do not take the partial opt-out. Thus, members of the transition generations might be collectively disadvantaged by the asset swap, but still find it individually advantageous to accept.

What do the accounts of fundamental reform in these countries tell us about the probability of similar reforms in Western Europe? Encouragingly for advocates of reform, the stories told in these papers show that it is possible to have radical change even when there is a large implicit pension debt. The Polish and Hungarian cases, in particular, show how reform can come through voluntary choice rather than through politically difficult benefit cutting. In each of the three countries, however, the present value of *expected* accrued benefits based on past contributions was probably much less than the face value of the implicit debt. Ironically, reform in Western Europe is made more difficult by the greater credibility of its pension promises.

Discussion Summary for Chapters 11, 12, and 13

Laurence J. Kotlikoff commented on the reform proposal for Romania. He criticized the notion that a country may develop by mobilizing domestic saving to invest, because all the countries that have developed quickly—such as Korea, Singapore, Malaysia, or more recently, China—have done so with massive amounts of foreign investments. In his view, the Romanians will end up investing in government debt because there are no domestic alternatives to invest. The government will use that borrowing to spend more and in the end will be unable to repay the debt. *Eytan Sheshinski* responded by noting that 90 percent of China's investments are financed by local saving and that China has done reasonably well with that. Sheshinski said that, in general, there is a trade-off between the tightness of regulations and the degree of competition in the pension system. He reported that when the Romanians had to weigh the security of the new

system against the degree of competition, they adhered to the cautious side. He noted that the support for moving to a funded system is very fragile in Romania, and a fund's going under once or twice could be disastrous for the whole system. As examples of the cautious approach taken in Romania, Sheshinski mentioned fee regulations, regulations with respect to the portfolio structure, and pension guarantees.

Axel Börsch-Supan asked about the assumptions made in the paper by Rocha and Vittas with respect to the crowding out of savings. *Roberto Rocha* answered that the paper does not contain estimates for overall private savings, but only for pension savings. The total effect of the pension reform on voluntary private saving is unclear in the view of Rocha, because different reform parameters have contradictory influences on private saving.

Börsch-Supan noted that a conversion to a notional defined contribution (NDC) plan does not change the economics of the pension system. Rocha responded that Hungary did not undertake an NDC reform but a defined benefit (DB) reform. He said that the simulations of NDC reforms in the paper are counterfactual, because they show what the effects of an NDC reform would have been. With respect to the growth effects of pensions, Rocha called the literature on growth schizophrenic: The empirical literature on growth shows a powerful and robust capital market effect on growth, whereas in the pensions and growth literature this effect does not exist. *Ignazio Visco* remarked that the capital market effects quoted by Rocha may depend on some extreme observations.

Referring to the paper by de Menil and Sheshinski, *Axel Börsch-Supan* asked how the surplus that accrues to the government in a pay-as-you-go system is transferred to private accounts. *Eytan Sheshinski* answered that the collection of contributions is performed by the public system for reasons of returns to scale. The diversion to the private funds is performed through the government on the basis of membership. Sheshinski called this the most efficient and secure method of collecting and distributing the contributions. Börsch-Supan expressed his opinion that the important goal is not to increase saving but to increase capital productivity.

Sheshinski noted that the terms concerning the annuitization of the pension funds have not been determined yet in the transition economies. He called this a real weakness of the reforms in these countries. Sheshinski finally emphasized that the structure of the regulatory authority is of utmost importance for the success of the reforms. For Romania the decision was to establish a new regulatory authority detached as much as possible from the political arm.

Roberto Rocha noted that the first pillar that has been introduced in the central and eastern European countries is not the first pillar the World Bank has advocated. The World Bank has advocated a redistributive first pillar, whereas the first pillar in the central and eastern European countries

is less redistributive, and redistribution has been shifted outside the pension system. Regarding the question of the discussant as to why the transition numbers for Hungary look reasonable, Rocha mentioned the erosion of the tax base that preceded the reform. If a country had already suffered a massive erosion of the tax base before a reform, the revenue losses from the introduction of a second pillar after the reform are much smaller.

Jerzy Hausner said that even if one cannot prove that a pension reform will raise domestic saving, one advantage is obvious: A pension reform will change the proportions in the capital market, because domestic long-term capital could not be created in any other way.