



## THE REFORM OF THE ITALIAN SOCIAL SECURITY SYSTEM

edited by:

Elsa Fornero\* and Onorato Castellino\*

### Summary

The report is the result of a work-team, set up at CeRP and supervised by **Elsa Fornero** and **Onorato Castellino**, made up of the following researchers: **Michele Belloni**, **Margherita Borella**, **Pier Marco Ferraresi**, **Michela Scatigna** and **Giovanna Segre**. **Fabio Cesare Bagliano** (University of Turin and CeRP) and **Giovanna Nicodano** (University of Turin and CeRP) also cooperated. We thank **Michelangelo Filippi**, **Laura Piatti** and **Claudia Villosio** for useful discussions.

---

\* University of Turin and CeRP (<http://cerp.unito.it>).

The research benefited from a financial support by Assonime (Italian Association of Public Companies) and Confindustria. (Italian Association of Industrial Firms). Editors and authors, who worked in full autonomy, assume the whole responsibility for the expressed opinions. The report has been printed by the Italian publisher Il Mulino (October 2001), under the title **La riforma del sistema previdenziale italiano**.

## 1. THE REASONS FOR COMPLETING THE REFORM

### 1.1.The financial imbalances

At the beginning of 1992 the Italian social security system suffered from three serious anomalies:

- *very high present and projected financial imbalances*: either payroll tax rates should have been progressively increased to more than 50 per cent in order to cover expenditures or higher and higher contributions from the general state budget would have been required to meet the gap between contributions and expenses; both options, however, presented serious drawbacks;
- *distributional inequities* arising from the system fragmentation and from the large discrepancies among the rules of the various schemes (normally favouring the high-income categories), as well as from the application of a (final) earning based formula for calculating benefits. The formula implicitly favours the most dynamic careers and – when combined with the “seniority pension” provision - the most precocious and most continuous ones (a “seniority pension” may be obtained, irrespective of age, when a given working seniority has been acquired: this was as low as 20 or 25 years for the public sector and 35 for the private one). The effects of social security on income distribution, therefore, worked very often towards the perverse direction of emphasising inequalities, thus contributing to a growing dissatisfaction for the system;
- *powerful incentives to early retirement*, again under the effect of the seniority pension provision, implying a negative return from the continuation of the activity after reaching the minimum requirements to retire.

Autumn 1992, with the first pension reform (the so-called Amato reform), represents a historic turning point in the Italian social security policy. Indeed, the reform was followed three years later by a second one (the 1995 Dini reform), and by a further revision by the Prodi government in 1997, so that the whole decade stands as a radical departure from the past, and a brave contribution to correct previous undue generosity. However, it also shows the country’s preference for gradualism, instead of “cold showers”.

When the reform process will be fully phased in (i.e. leaving aside the transition phase, which we will return on later), the link between pension benefits and final earnings characteristic of the earning based method will be substituted by a more appropriate reference to the earnings (Amato) and the contributions (Dini) of the whole working life. Further, the harmonisation of the rules applying to the different schemes was established as a general principle and entrusted to subsequent pieces of government legislation. Consequently, the incredibly generous seniority pension provision for public employees was initially brought back to the less generous set of rules applying to private employees (Amato), and then abolished for both categories (Dini). In a similar vein, a lower pension

promise was associated to the lower level of the payroll tax rate contributed by the self-employed, thus correcting the previous provision granting the same earning based formula irrespective of the much lower contributions.

As an effective means to achieve immediate savings in expenditure, a further innovation (fully operative since the Amato reform) de-indexed all pensions with respect to real wages, while maintaining price indexation. It is to be noted that this measure alone is responsible for a large fraction of the savings realised from the start of the reform process up to year 2000.

The previous anomalies, however, had shaped the expectations of the workers of most cohorts, and both the 1992 and 1995 reforms lacked the political strength to cut past promises in a substantial way. A very gradual phasing in of the new rules was thus envisaged, in the attempt to protect not only pensioners (apart from the change in the indexation mechanism) but also middle-aged and even younger workers. In particular, this meant excluding from the reform all workers having contributed at least 15 years in 1992, at the time of the Amato reform, and 18 years in 1995, when the Dini reform was enacted. Workers with a lower seniority are dealt with through a “pro rata”, or mixed, system: the years before 1995 generate an earnings-based pension, and the years after 1995 a contribution based one. As a result of the long transition, the new regime will be fully operative only after 2030 as far as the flow of new pensions is concerned, and only after 2050 for the whole stock. Without new interventions, past rules will thus maintain their influence well into the future, for other three-four decades, leaving two sets of problems still open:

- the strong financial imbalances between contributions and expenditures
- the survival of relevant microeconomic distortions, typical of the old regime.

Both during and at the end of the transition, the payroll tax rate will equal 32.35 per cent for public employees and 32.70 for private employees. For the self-employed (craftsmen and shopkeepers) the payroll tax is due to rise, although very slowly, from 15 to 19 per cent. But all three levels (being the first two very high in comparison to international standard) are insufficient, and until 2040 widely insufficient, to cover expenditures. With an unchanged set of rules, the overall annual deficit can be estimated at 4-4.5 per cent of the GDP until 2030, starting only afterwards to converge slowly towards the approximate balance that should characterise the new notional defined contribution design (see table 1).

**Table 1. Deficits in the Italian Social Security (per cent of GDP )**

Years	FPLD (Private employees)	Self- employed	Independent farmers	Public employees	All schemes
2000	2.03	0.18	0.73	1.15	4.09
2010	2.46	0.42	0.54	1.13	4.55
2020	2.56	0.59	0.35	1.18	4.68
2030	2.56	0.60	0.20	1.24	4.60
2040	1.57	0.35	0.10	0.60	2.62
2050	0.29	0.15	0.05	0.20	0.69

Source: our calculations based on INPS projections for the first three columns, and our estimates for the public sector.

## 1.2. The microeconomic distortions: effects on labour supply

Although payroll tax rates are - and will be - largely insufficient to cover expenditure for most schemes, they are already sufficiently high – even when compared to European Countries having similar social security schemes- to cause concern about labour costs, labour market performance and competitiveness.

True, the inter-relationships in this field are particularly complex, and the empirical evidence does not allow for unambiguous results; both facts thus suggest prudence in drawing *policy* implications on the basis of a sheer qualitative description as well as of a simple comparison of international payroll tax rates.

There are indeed no compelling reasons (at least not in principle) leading to a necessary equalisation of social contributions to a distorting form of taxation. More specifically, this equalisation cannot be made when there is a strict correspondence – in actuarially fair terms - between payroll taxes and pension benefits. When this is the case, individuals are (or should be) aware that social contributions merely represent savings for retirement, to which benefits will correspond in the future. Even though it is a compulsory saving, provided the tax rate is not higher than the level that would be chosen by the workers, social security contributions should then be neutral – except for second order effects (and for the problem which will be dealt with under 3.1) - with respect to both employees' and employers' choices.

The *principle of actuarial fairness* is in effect at the basis of the notional defined contribution formula adopted by the Dini reform, which is thus aiming at this benchmark of neutrality. As for financial stability, this neutrality will be reached only at the end of a very long transition, i.e. after 2050 when (almost) all pensions will be determined according to the NDC method.

As it stands, Italian social security system still is, and will be for some other decades, very far from neutrality. This is due to the persistence of the old rules, with their differentiation among schemes, the early retirement provision, the earning based formula, as well as to the misuses of the pension system by politicians, in terms of a perverse redistribution and as a support to the restructuring of many industrial sectors (pre-pensioning provision).

The earning based formula, in particular when coupled with early retirement, causes large distortions, given the weak link between contributions and benefit and, above all, given the absence of any adjustment of benefits to the length of life expectancy at retirement.

With the aid of a simulation model, we have estimated for several cohorts of (private and public) employees the losses resulting from the continuation of the job after reaching the minimum age/seniority requirement. Calculations (see table 2) indicate that the dead-weight losses (which we call the “implicit tax” on work) for the cohorts protected by the very slow transition – and thus benefiting from a pension that is completely or mostly earning-based - can approximate 60-70 per cent of the wage. In these circumstances, one cannot be surprised that the activity rates strongly decrease from relatively young ages, i.e. from about 55 years. From this perspective, one can easily find an incoherence in the system, which seems – through the earning based formula - to disincentive exactly the resource that is vital to its stability, i.e. regular employment. Moreover, it is often the case that people retiring so young turn to irregular and hidden jobs.

As shown in table 2, the “implicit tax on work” involves in particular the cohorts that benefit from the very favourable seniority pension provision. For these cohorts, to keep working after reaching the minimum requirements is extremely costly: for the 1943 cohort, for instance, the “tax” amounts to 43 per cent of the wage, in case retirement is shifted from 35 to 36 years of career; it rises to over 70 per cent in case one retires after reaching 40 years of contribution.

For a given seniority, the tax decreases from the older to the younger generations; however, it does not disappear even in the steady state given to the difference between the rate of growth of GDP and the interest rate (in the simulation, the first being 1.5 per cent and the second 2 per cent, implying a disadvantage of the PAYG system with respect to the funded component).

**Table 2 – FPLD (Private Employees) – “implicit tax on work” (per cent of the wage)**

Formula	Cohorts	Years of contribution		
		35	37	40
Earnings based	1943	43	52	72
	1948	52	59	72
	1953	53	61	72
Pro rata	1958	29	29	29
	1963	20	20	20
	1968	11	11	10
	1973	4	3	2
Contribution based	1978	4	3	2
	1983	4	3	2
	1988	4	3	2

Note: the above calculations refer to male workers entering the labour market at the age of 22.

## **2. OPTIONS AND PROPOSALS FOR A REFORM WITHIN THE PAYG SYSTEM**

### **2.1. Why extending the pro rata mechanism is not enough**

In order to correct both the financial imbalances and the distortions of the transitional phase, the most natural and also less controversial reform scenario consists in the application of the notional defined contribution formula to all workers, for their remaining working life, irrespective of its length. This measure is known as extension of pro rata, the term “extension” meaning the application of the new formula also to the workers which had been initially excluded from it, i.e. workers with at least 18 years of contribution at the beginning of 1996. Leaving out a great number of workers was probably the price to pay for the reforms to be approved (the 1992 reform as well as the 1995 one); on the other hand, it is obvious that the longer the extension of pro rata is delayed the smaller will be its effects, since this measure affects the transitional phase and not the steady state.

A simulation test was carried out, assuming the reform to be applied from the beginning of 2002. The CeRP simulation model allows to assess the consequences that the extension of the pro rata mechanism would have in terms of reduction of microeconomic distortions (analysed in the previous paragraph), as well as in terms of savings in pension expenditure (using an aggregate version of the model). Under both perspective – limiting expenditure and correcting distortions - the effects of this reform option appear relatively small.

## **2.2 Why and how it is necessary to correct seniority pensions**

As already stressed, the financial imbalances as well as the microeconomic distortions derive from the combination of a very generous formula (the earning based scheme) with the still very low normal retirement age induced by the seniority pension provision, whose effects are exacerbated by the significant increase in life expectancy projected for future decades. The most obvious way to contrast the effects of this demographic change is an increase in normal retirement age induced either by a higher age required in the age/seniority combinations established the transition phase or by adjusting the pension amount on an actuarially fair basis (the lower is the age, the lower will be the pension, all other things being equal).

The first way out (increasing by law the retirement age), though immediately effective in reducing expenditure, seems potentially harmful in terms of the welfare of individuals (some people may prefer to retire early even if their pension benefits are reduced) and in terms of inefficiency for firms (workers obliged to go on working may reduce their productivity). One should consider the likely costs caused by relying on compulsory measures instead of incentives; personal and family reasons, the opportunity cost of the current occupation and, more generally, the “indifference curve” between work and leisure, on the one hand; and the combined effects of old age on worker’s experience and on worker’s obsolescence, on the other hand, are extremely variable from one case to another. Legal obligations cutting across this heterogeneity of individual situations are likely to produce non negligible welfare and efficiency costs.

Consequently, in the perspective of a flexible and efficient pension system, the actuarial correction of the pension benefit, coupled with freedom of choice on the retirement age, should be preferred to an increase by law of such age or to the introduction of temporary stops to seniority pensions.

It should be noted that introducing an actuarial correction of the earnings based pension component affects not only future rights but also accrued rights and is therefore much more difficult to implement. An argument that can be used to counterbalance the assumed intangibility of accrued rights is the substantial increase in life expectancy at the retirement ages that has occurred in the last decades. In the last four decades, life expectancy at the age of 55 and 60 has increased by one fourth for men and even more for women. One could then argue that the pension promise made in the early Sixties, when seniority pensions were introduced, would not be reduced but divided over the greater number of years resulting from the improvement in longevity. It would not be a matter of breaking the promise, but

only of adjusting it to the demographic changes, instead of burdening the younger and future generations who – in case no adjustment is made – would be called to pay for the choices they did not even participate in.

In our simulation model, the actuarial correction consists in applying to the earning based component of the pension (which might be the total, for the older generations) a coefficient equal to the ratio between the Dini's transformation coefficient and the coefficient for age 65. The correction involves a benefits cut of roughly 3 percentage points for each year of retirement earlier than 65 years.

In order to calculate the resulting savings we started from a combined age/seniority distribution of employees; under the hypotheses of continuous careers and of retirement at the minimum age/seniority requirements, we have estimated the pension flows corresponding to the actuarial cuts and compared them to the flows related to present legislation. Table 3 contains the main results, by distinguishing between a “minimum scenario” (that considers only men) and a maximum scenario (that include both men and women).

**Table 3 – Savings in expenditure from actuarial correction of seniority pensions**

Years	Private employees (billions of 2000 Italian lira)		Public employees (billions of 2000 Italian lira)		All employees (per cent of GDP)	
	minimum	maximum	minimum	maximum	minimum	maximum
2010	13540	22646	4633	9085	0.72	1.26
2015	18410	30791	6572	12887	0.92	1.62
2020	20750	34705	7219	14155	0.96	1.68
2025	21142	35359	7159	14037	0.90	1.58
2030	19852	33203	6523	12791	0.78	1.36
2035	16718	27261	5366	10521	0.61	1.06
2040	12632	21127	3919	7685	0.42	0.73
2045	8482	14186	2466	4836	0.26	0.45
2050	5021	8397	1305	2559	0.14	0.24

As can be seen, and it is not surprising, the reduction in expenditures is substantial (and in fact much higher than that achieved by the pro rata extension alone). In particular, the annual flow of savings around 2020 reaches a maximum between about 1 and 1.7 per cent of GDP. Of course, this is to be considered more as an exercise meant to compare the different effectiveness of different reform proposals, than a proposal in itself. Indeed, while the pro rata extension does not affect the accrued rights at a certain moment, the new rules applying only to the future, the actuarial correction directly affects accrued rights.

While it is easy to foresee a strong opposition to such a measure<sup>1</sup>, it should be stressed that nothing prevents, in the political process, from making it milder, for example, by adopting a lower benchmark age, for instance 62 years, which means a smaller coefficient to reduce seniority pensions. The savings would be reduced, but would remain significantly higher than those obtained by extending the pro rata mechanism. Further, a few exceptions could be introduced, under the justification of the higher mortality rates of some categories, doing more wearing jobs.

### **2.3 A few comments on the scheme for the self employed**

Since the beginning (1957 for farmers, 1959 for craftsmen, 1966 for shopkeepers) independent workers have enjoyed favourable norms, i.e. a much more generous ratio between benefits and contributions (higher internal rates of return) than those enjoyed by private employees.

The tax rate was very low until 1990, when it was raised to 12%. Even after the further increases in the tax rate from 12 to 15 per cent (which occurred between 1991 and 1994) and the ones introduced by the Dini reform (up to 19 per cent, but with exasperating gradualism: 0.8 per cent in 1998 and 0.2 per cent in each of the following years, so that it will take 16 years to fill the gap between 15.8 and 19 per cent!), people with more than 18 years of contribution in 1995 and people under the pro rata are still enjoying privileged treatments. Let's consider the following two examples (valid for continuous careers):

- A worker who enrolled in 1975 will have paid very low contributions in 1975-81, still low contributions in 1982-1990, and rising contributions from 12 to 18.2 per cent of personal income in 1991-2010; she will become eligible to a seniority pension in 2010 and will receive a full earning based pension.
- A worker who enrolled in 1980 will have paid low contributions in 1981-90, and rising contributions from 12 to 19 per cent of personal income in 1991-2010; she will become eligible to a seniority pension in 2015, and will enjoy, through the pro rata mechanism, 15/35 of her pension under an earning based formula and 20/35 under the contribution based formula, according to a computational payroll tax rate equal to 20 per cent.

On these bases, the two proposals previously illustrated with respect to the employees can be extended, somewhat *a fortiori*, to the self employed. In particular:

- the extension of the pro rata mechanism is supported by the reasons already mentioned, and moreover, on an egalitarian perspective, by the low contribution levels of the years before 1990; at the same time, however, this measure has small effects;

---

<sup>1</sup> Actually, the problem has been “circled” in political and institutional sessions by advancing an alternative “milder” (and obviously less effective) solution, consisting in a “premium” to remain at work, i.e. the cancellation of the contribution tax rate, for people entitled to the seniority pension.

- the actuarial correction of seniority pensions is equally supported and much more effective.

## 2.4 Problems of the new NDC regime

Beyond the financial and microeconomic problems of the transition towards the new regime, there are a few aspects of the final configuration that deserve attention. These can be summarised in the following points:

- i. the updating of the transformation coefficients
- ii. the choice of the pension profile
- iii. the retirement age band and its adjustment
- iv. the redistribution implied in the new system
- v. the abolition of earning tests on pensions.

All aspects are discussed in the report. In this summary, we will focus our attention only on the first and on the last one.

*Updating the transformation coefficients.* Under the new NDC system, at retirement the amount credited to the individual (contribution plus return) is turned into annuity by multiplying it for the transformation coefficients of the table attached to the reform law (335/1995). The relation to the Government bill specifies that these coefficients are calculated with reference to the Italian Statistical Institute (ISTAT) mortality tables for 1990 and with an interest rate of 1.5 per cent. The law provides that the Labour Minister will re-define every ten years the coefficient of transformation on the basis of demographic records.

Table 4 indicates, for the ages between 57 and 65:

- life expectancy according to ISTAT mortality tables (1990)
- life expectancy according to the last available ISTAT mortality tables (1996)
- life expectancy according to the projection by the Ragioneria Generale dello Stato (1995), known as RG48 and used by now also by private insurance companies.<sup>2</sup>

---

<sup>2</sup> These tables take into consideration an individual born in 1948 and estimate his life expectancy at different ages, according to the “projections” of the current trends for the years after 1994. For people born afterwards one should also take into account (even though it has not been done in the present research) further longevity rises.

**Table 4. Life expectancy (years) at different ages according to gender**

Age	ISTAT 1990		ISTAT 1996		RG48	
	M	F	M	F	M	F
57	20.76	25.64	21.84	26.63	25.04	30.55
58	19.97	24.76	21.02	25.73	24.17	29.61
59	19.19	23.88	20.22	24.84	23.32	28.67
60	18.42	23.00	19.42	23.96	22.46	27.73
61	17.68	22.13	18.65	23.08	21.62	26.79
62	16.94	21.27	17.89	22.21	20.78	25.86
63	16.22	20.42	17.14	21.35	19.94	24.93
64	15.52	19.57	16.41	20.49	19.12	24.00
65	14.83	18.74	15.69	19.65	18.30	23.07

The table shows how relevant the effect of longevity rise is. Already in the six-years-period from 1990 to 1996, life expectancy increased by about one year for all ages taken into consideration (57-65) and for both genders. The RG48 tables foresee a four- year lengthening for males and almost five years for women in comparison to 1990.

It follows that:

- a simple 10-years adjustment of actual (i.e. statistically reported) mortality tables can produce, within the decade, a growing gap between applied coefficients and the ones in the more recent tables; in the decade 1990-2000 (being the 1996 tables the only ones known so far) it is likely that the gap will reach the ratio of one tenth;
- since one cannot (and does not want to) think about reducing the real value of pensions already in payment, if the coefficients are measured according to actual and updated but not projected mortality rates, the rise in life expectancy occurring during the pension enjoyment period (lasting some decades) turns to expenditure rises that will produce a growing deficit. To bring this frame back to the necessary conditions for financial balance, one should periodically (better every year) establish the transformation coefficient according to the projected life expectancy reported by the most trustworthy available sources.

*The prohibition of cumulating pension and wages.* These prohibitions are expressed by complicated laws in current legislation. The norms distinguish between old age and seniority pensions, between pensions coming from dependent and from independent work, between further activity in the former and in the latter, differing also on the basis the start of pension enjoyment.

This concept seems to be supported by two arguments, summed up as follows:

- a) the number of jobs is given, and a retiree must not crowd out a young person;
- b) pension is in some way a favour or a present, and the beneficiary should “pay” for it by giving up other income sources.

The first argument is weak for a number of reasons: jobs are more or less available depending on qualification, geographic area, full or part-time, and other elements; therefore, for many of them it is not a matter of choice between an old worker or a young worker, but between an old worker and no worker at all.

The second argument, whatever ground it may have, will not be valid after the principle of actuarial fairness (that inspires the Dini reform) will be fully applied.

In both cases it is important to add that a working pensioner is already subject to social security contribution and to taxation. A further duty coming from foregoing a part (or the whole) of the pension leaves him with such a little margin that, in case he has a job opportunity, the incentive to turn to hidden work becomes irresistible. On these premises, both the purpose of leaving a job post free and of cutting the income of a working pensioner is thwarted.

Therefore, the 2001 financial law operated appropriately when allowing the possibility of fully cumulating wages and salaries with old age pensions and with pensions reached after 40 years of contribution, and softening the limits for pensions obtained with less than 40 years of contribution. The full liberalization of the latter may raise some doubts in egalitarian terms. However, if one considers the higher probabilities for younger pensioners to turn to hidden work, it is probably suitable to introduce the liberalization in the name of realism. The freedom of cumulating will have to be associated *a fortiori* to future pensions (even seniority pensions) in case corrective measures in terms of actuarial fairness are adopted (see 2.2).

### **3. REASONS IN FAVOUR OF A MIXED SYSTEM**

#### **3.1. A comparison between steady states and return rates: historical evidence**

The thesis that the only remedy for the pay-as-you-go imbalances is a drastic and complete return to capitalization is often proposed, in particular in the U.S.A., but also in some European countries and in Italy. Basically, the debate consists in the comparison between two steady state situations, being the former represented by a PAYG system and the latter by a funded system. In the first case, the implied contribution return is equal to the development rate of the payroll (approximately equalized to GDP growth rate:  $n+g$ ), while in the second case the reserves earn the return  $r$  of the financial markets. If  $r$ , even after deducting management costs, is higher than  $n+g$ , capitalization allows the same performance level with lower contributions, or a higher performance level with the same contributions.

The assessment of actual returns expected for the different financial activities in the long term is of crucial importance for the formulation of a reform hypothesis in social security systems, and for a comparative evaluation of proposals attaching different weights to the funded component. Recently, a number of studies analysed the long term performance of shares and securities yields, concentrating on countries with a greater availability of data covering a sufficient long period, first of all, U.S.A.

The complete text of this report, using tables and charts, provides on long term historical basis several quantitative indications, which can be summarized as follows:

- already markets return is on average sensitively higher than fixed income return.
- already markets return is on average higher than GDP variation rate.

### **3.2. From historical evidence to forecasts**

Before concluding that a funded system (thanks to an equal performance with lower contributions or to a higher performance with equal contributions) is more efficient, one ask whether in the past is sufficient to forecast the future. Are annual share yields similar to balls drawing from a box – always the same box! – so that they can be analysed through the same statistical techniques as random samples? Or does history never repeat itself (even if political-economic institutions remain unchanged and respect private ownership and free enterprise), thus preparing continuous surprises?

Detailed analyses, carried out according to the Fama and French (2001) technique and widely described in the report, showed how the use of past returns to make forecasts can originate serious distortions in the results. Several other reasons may explain why today's expected future returns can be much lower than historically recorded ones. Diamond (1999) underlines some aspects of the recent evolution of financial markets that may lead to a decrease of expected equity premium in the future, and in particular: a greater presence of mutual funds in the market; a reduction of investment costs through these funds; the higher and higher diffusion of direct or indirect share investments that tend to reduce the requested premium on shares, since risks are distributed among a higher number of individuals.

It is reasonable to hypothesize that the above mentioned events, as they have a greater relation to stock markets, may cause a reduction of premium to future risk, especially through a decrease of expected shares returns. The whole set of the above mentioned factors leads to a sceptical view on every simple projection in the future of high share returns recorded in the last decades. Moreover, since they are only based on U.S.A. experience, they should be considered more prudently.

### **3.3 The variability of returns**

Share yields, though being on average higher, are normally more fluctuating, and therefore more uncertain and hazardous. For instance, Siegel (1998, page 27) shows that five-yearly average annual returns in the USA market in the period 1802-1997 fluctuate between 26.7

per cent and 11 per cent; for twenty years periods, the gap is restricted to 12.6 and 1 per cent. Even adopting Siegel's view, a five years projection would certainly not guarantee positive share returns. Although being a short period for a scholar who observes events *ex post*, 5 years are an eternity for a fund manager who has to face every day the press, the subscribers and the comparison with the performance of other managers. What would have happened to a manager turning all his reserves in shares in the 5-years period recording an annual share yield of -11%? How could he appease his subscribers and convince them to wait for other ten or fifteen years?

Therefore, share investment is likely to raise some problems for a pension fund that has to give some guarantees to people, who plan to draw from it the source of support for old age.

Returns fluctuations can be mitigated by investing reserves not only in shares but at least partially (literature on the subject suggests a ratio of one third or two fifths: see, for instance, Modigliani et al. 2000, page 4) in bonds, that are supposed to yield on average lower but more constant real rates, apart from periods of strong unexpected inflation.

A more refined remedy suggests that the Government guarantee a pre-established yield, taking upon itself the risk of fluctuations. Modigliani et al. (2000, pages 25-28) consider a Government intervention as a feasible and profitable measure for the public budget, in case the guaranteed real return equals 5.2 per cent.

However, bearing in mind the previous observations on the caution needed to pass from experience to forecasts and about returns' variability, the appeal to state warranty will seem full of risks and dangers. If also the guaranteed rate were lower than it is expected, being the standard average deviation within the century about 2 per cent, even an institution with such a long term view as the State could meet some problems in supplementing returns to that minimum for pluri-decennial periods. One would risk to lay a big part of social security costs on public budget, i.e. on active cohorts, thus restoring a substantial (and surreptitious) amount of the PAYG scheme while trying to lead the system towards capitalization.

Alternatively, one could accept a warranty for a very low rate, but in this case the aim of the warranty, i.e. assuring a satisfactory living standard, could not be achieved.

### **3.4 Reasons for a mixed system**

A detailed analysis of portfolio choices offers an escape to this dilemma. Assuming (as is reasonable) that returns coming from both systems are not perfectly correlated (apart from being uncertain) and that individuals are rational and risk-averse, the choice of an optimal combination of risk-return should lead to participate in both systems at the same time, i.e. to diversify one's social security portfolio. Both the PAYG and the funded formula imply some risks; since these risks are partially independent, a simultaneous participation in both systems allows subjects to counterbalance them.

In Lindbeck's words (2000, page 22): " In a world of uncertainty, we also have to look at the risk-return combination of alternative pension systems. The returns on PAYGO pension claims are not fully correlated with the return on the claims in the context of actuarially fair

pension systems. First, the growth rate of the tax base of a PAYG system (i. e., aggregate earnings) and the return on financial markets are not fully correlated, in particular, when pension funds have foreign assets. The political risk is also likely to differ because claims on funded systems with individual accounts probably provide stronger property rights than do pension claims in PAYGO systems...What all these points boil down to is that a combination of PAYGO and a fully funded system provides a richer portfolio of “assets” than either of these pension systems in isolation. This seems to be the main rationale for a *partial* shift to a fully funded system”.

### 3.5 Problems of the transitional phase

Even though it would be possible to demonstrate that funding is better than a pay-as-you-go system, both of them considered in a abstract way, this demonstration could not ignore the problems of a transition from the latter (existing *de facto*) to the former.

Indeed, the expectations of grown-up and old cohorts deriving from past legislation cannot be disregarded. In other words, it is true that, being  $r > n+g$ , the transition would offer a higher return of savings to generations entering the labour market after the transition has been completed; but this advantage would have been paid by the generations of the transitional phase, that would have carried upon themselves a double burden, respecting the old system’s promises and accumulating the resources for the new one.

Proposals for a full (even if a slow and gradual) passage from PAYG to capitalization (supported by authoritative scholars such as Martin Feldstein for the U.S.A. and Franco Modigliani for Italy) are aware of the problem of intergenerational transfer. They regard it however as an easily solvable one, thanks to the difference between  $r$  and  $n+g$ . In one of the several versions proposed, Feldstein and Samwick (1997) assume that a funded system could invest its reserves at an annual real rate of as much as 9 per cent. Obviously, the lower are the returns, the more burdensome and/or longer will be the transitional phase. In any case, it is important to underline that the transition will not be able to offer benefits for all (unless indirect effects such as a decrease in distortions and the implied income rise are taken into consideration). It can only provide a transfer between generations, equal and opposite (since it benefits future generations with burdens on the present ones) to the transfer occurring with the introduction of a PAYG system (Kotlikoff, 1987).

The proposal made by Modigliani and Ceprini (described in box 3.1 of the report) is subject to this trade-off, too. Indeed:

- a) it lays on public finances a burden of 10 per cent of the payroll (besides a 2-6 per cent in the transitional phase), even after the funded scheme has been established.
- b) it withdraws from companies over two thirds of the severance payments fund (TFR)<sup>3</sup>, thus imposing on them a higher cost for an equivalent market financing.
- c) it assumes that the actual real return on reserves amounts to 5 per cent, a too optimistic value for the above mentioned reasons, and,

---

<sup>3</sup> Severance pay fund was originally devised as an insurance scheme against involuntary loss of employment, but it gradually evolved into a form of deferred compensation, no matter the specific cause of job termination. Under TFR regulations, 2/27th (7.41 per cent) of a year’s gross salary must be set aside by each firm every year. This means forced saving for the workers as well as availability of low cost finance for the firm.

- d) it implicitly considers the State warranty about this return<sup>4</sup> to be without costs, while we are afraid for the same reasons that it could represent a surreptitious return to a – at least partial - PAYG financing system (not to mention what many are afraid of, i.e. an improper use due to political pressures of such a great amount of assets, equal to three times as much as total payroll).

From what has been said in this paragraph one may draw a double conclusion: first, the passage to a funded system would impose on active cohorts burdensome sacrifices during the process, difficult to be accepted; second, even under this viewpoint, the claim for a partial transition in view of a mixed system seems to be more appropriated.

#### 4. TOWARDS A MIXED SYSTEM

In our country, the funded component can be built within to two different scenarios:

- a) in a “conservative” scenario the public system is unchanged, and the funded component is financed through new savings’ flows and/or through diverting savings from other uses (and, in particular, from TFR for employees)
- b) in a “renewing” scenario the employees are offered the opportunity of opting out from the public system, through a reduction of payroll tax rate and a corresponding capitalization of the labour cost rates that are left free.

##### 4.1 TFR: a great illusion

As far as the conservative scenery is concerned, Italian legislation since the Amato reform foresees and encourages financing through TFR flows, with addition of workers’ and employers’ payroll contributions (independent workers can only contribute by themselves).

*TFR as companies’ liability and workers’ activity.* The debate on possible employments of TFR for social security aims usually considers it as a company’s liability and looks at the costs that would derive in case an immediate outpayment were ordered.

The usual debate leaves out of account the other important aspect of TFR, i.e. an asset in the workers’ portfolio. Since this asset earns a relatively low rate, fixed by law (1.50% + 75 % of inflation rate), one could infer that workers have an interest in transferring it to pension funds.

One should not however forget that TFR has got three functions for workers: it can be a buffer stock in case one loses his occupation; it can be withdrawn to finance relevant health care spending or to buy one’s house, if at least 8 years under the same employer have passed; it is a sum that can be cashed, for whatsoever purpose, at the moment of retirement. Transferring TFR to pension funds can therefore worsen liquidity constraints, whose

---

<sup>4</sup> “Risk is completely absorbed by the State that, with its never ending life, and with its transaction power, can stand that risk much more than a poor individual. Moreover, the State retains the possibility of distributing it over a number of generations; otherwise, the risk would concentrate only upon the poor individual” (Modigliani 2000, page 146).

importance must not be underestimated. If this assumption is true, workers' aversion to pension funds even in presence of tax facilities can be explained through their "preference for liquidity". The same reason justifies what is often considered abnormal and inexplicable, i.e. the fact that younger cohorts seem to be more reluctant to subscribe for pension funds than older ones.

Not surprisingly, in the last research by BNL-Centro Einaudi, when asked: "which kind of pension funds financing are you in favour of?" very few people answered "by future total flows of TFR" and only 13.6 per cent answered "by a partial future flow of TFR". Workers seem then to dislike the lack of liquidity connected to the destination of TFR sums to pension funds.

One should therefore think to an opting out scheme, offering a reduction of payroll PAYG tax rate only to workers who agree in transferring a part of, or the whole, TFR (see below) to private pensions, allowing at the same time some kind of compensation for employers.

#### 4.2. Opting out: a solution in the name of efficiency and freedom

This measure gives workers the opportunity to reroute part of the payroll tax rate to a private system.

Our assumption can be expressed as follows: if a worker decides to set aside TFR flows to a pension fund, the payroll tax rate is reduced from the current 32.7 per cent (for simplicity's sake, 33 per cent) to 25 per cent, i.e. by 8 points, with 3 points to be left to the firm (corresponding to a cost reduction) and 5 to a PAYG pension fund.<sup>5</sup>

*Costs and benefits for public finance.* These factors are detailed in table 5, that concerns only FDLF (private employees' fund) supposing that the option is only offered to new entrants in the labour market and is enjoyed by all eligible workers.

**Table 5. – Cost (in % of GDP) deriving from a reduction of the payroll tax rate from 33% to 25% in FPLD**

Year	%	Year	%
2005	0.16%	2040	1.30%
2010	0.33%	2045	0.93%
2015	0.49%	2050	0.62%
2020	0.65%	2055	0.28%
2025	0.82%		
2030	0.98%	2060 and later	zero
2035	1.14%		

A similar transition can be envisaged for public employees, whose rules tend to converge to FPLD's after the harmonization process of the Amato and Dini's reforms: a lowering of the

<sup>5</sup> In order to leave out a sum that could be used in case of termination of employment, one could alternatively dispose that the TFR remains to the company for the first two or three years of contribution.

payroll tax rate for new cohorts from 32 to 25 per cent. Since the number of employees in the public sector amounts to about 30 per cent of employees in the private sector, with a rough approximation the figures in the table can be increased by a similar percentage.

In conclusion, in order to reduce by one fourth (from a payroll tax rate of 33 or 32 per cent to 25 per cent) the level of the PAYG system for public and private employees, a transitional phase longer than 50 years is needed; during this phase, a greater burden (growing up to 2 per cent of GDP and then gradually returning to zero) has to be sustained to meet the expectations of past cohorts.

*Benefits for individuals.* Table 6 takes into consideration an earnings based profile growing by 2 per cent pro year, while GDP rises by 1.5 per cent. Work activity starts at age 25 and ends in the three examined cases, at age 57, 60 and 65. The table indicates pension treatment in terms of the replacement rate between pension and last wage, considered in the status quo and for a worker exerting this option (TFR amount is approximated from 6.91 to 7 per cent)<sup>6</sup>. Two different return rates from capitalization (2.5 and 4 per cent) are considered: for the reasons mentioned in the previous chapter, the second rate can be taken as the highest limit, beyond which one would be too optimistic.

**Table 6. Replacement rates (RR) for TFR (7%) and *opting out* (5%)**

Retirement age	RR from current PAYG (33%)	RR from PAYG with <i>opting out</i> (25%)	RR from capitalization (7%+5%) $r=2.5\%$	RR from mixed pension system	RR from capitalization (7%+5%) $r=4\%$	RR from mixed pension system
	i	ii	iii	iv = ii + iii	v	vi = ii + v
57	0.398	0.302	0.196	0.498	0.306	0.608
60	0.464	0.352	0.230	0.582	0.363	0.715
65	0.604	0.458	0.301	0.759	0.485	0.943

Columns iv and vi show, with two hypotheses of return rate, the overall replacement rate. The difference between either of these two columns (including the results of renouncing TFR) and column i (where TFR remains untouched) is obviously growing, thanks to compounded returns, according to retirement age as well as interest rate. Therefore, this difference rises from 10 percentage points for the poorest case (age: 57, rate: 2.5 per cent) to 34 in the richest case (age: 65, rate: 4 per cent). Even if in table 5 it has been assumed that all eligible person would opt out, there is no certainty that this behaviour will be followed also by individuals forecasting or fearing discontinuous and/or relatively short careers, who could consider the difference between expected replacement rates an insufficient reason to compensate a renounce to TFR.

As far as firms are concerned, the reduction of payroll tax rate constitutes partly a compensation for their forgoing TFR financing, and partly a reduction of labour cost. The

<sup>6</sup> To calculate income deriving from capitalization as well as from PAYG pensions, RG48 mortality tables have been used.

forgoing burden for each firm depends on workers' average seniority: the higher is the seniority, the greater will be the burden.

Why then opting-out? In order to express a final opinion, one should compare opting out to other two feasible strategies: maintaining the status quo and turning to pure capitalization.

The first strategy, even if it is accompanied by measures to balancing expenditures and incomes in the PAYG system, implies a perpetual contributive overloading (a 33 points payroll tax rate), an implied return reduced by the stagnancy of working population and of a sub-optimal pension portfolio.

The passage to pure funding does not even seem to be a proposable measure, as is seen in chapter 3, since this is not considered an optimal portfolio and since the necessary sacrifices of the transitional phase are absolutely impossible to tolerate.

Opting out is therefore a *media virtus* between these two extremes, both unacceptable<sup>7</sup>. This is neither an easy, miraculous solution nor a measure to be obtained without costs for anybody. It appears however the only realistic choice between immobility and utopia.

## 5. THE ROLE OF PENSION FUNDS

### 5.1. Foreword

The portrait of the present and future pension system would not be complete without including some observations on the evolution of supplementary pensions.

In this field there has been an intense, but so far not very efficient law-making activity. The main reason for this failure is the lack of resources to be immediately turned to the supplementary pillar, not to mention the very high compulsory contribution, at least for private and public employees. A second reason is that legislators have only lately and in many cases still insufficiently recognized the opportunity of offering real – and not only apparent - tax incentives for pension wealth accumulation.

Our “civilistic” discipline on supplementary social security, on the other side, is considered today able to reach its objectives, also because it is strongly connected with the principles of pension portability and capital mobility which the free circulation of productive factors in Europe is based on.

---

<sup>7</sup> Suggested parameters for opting out (i.e. payroll tax rate reduction from 33 to 25 per cent, saving 3 points for firms and rerouting 5 points to capitalization) are not necessary and pre-determined, and can therefore be modified. A higher reduction would generate a lower payroll tax rate (for instance, 22 or 20 per cent) and presumably a more balanced social security portfolio; yet, at the same time, it would imply a longer transition period. Maintaining the proposed reduction and giving a higher percentage to firms would have beneficial effects on labour demand, but would be paid for by workers, in terms of a lower transfer to pension funds. The proposed parameters, even though widely arbitrary, seem an acceptable compromise among these different and opposite aims.

## 5.2 Convenience from tax benefits

As far as fiscal aspects are concerned, the legislator has only recently come to a uniform discipline for all forms of pension wealth. The report provides, following the method applied by Fornero (1996), a first indication about the effects of the law 47/2000. The parameter used to evaluate the convenience of choosing pension funds is the “net benefit”, obtained a) by calculating the difference between the net accumulated capital in the fund and the net capital of the alternative option and b) by dividing it for the latter.

Computations regard each single financing source that can be destined to the pension fund. Firstly, the net benefits deriving from each contribution source are calculated; secondly, in order to evaluate the global benefit, the contemporary destination of all three contributions (from worker, employer and TFR) is taken into consideration.

The alternatives to the destination of all three contributions to the fund are:  
for the contribution by the employer, that a higher retribution is obtained  
for the contribution by the worker, that he invests in bonds  
for TFR, that it remains in the company

We have made the following assumptions:

the fund average return (net of management costs) is the same as for bonds (please take note that the interest rates shown in the tables are nominal ones; in real terms they are always supposed to be 3%);

firms do not want to renounce TFR in full without a reward. Indeed, a methodologically correct analysis cannot attribute the resulting benefits only to the transfer of TFR to pension funds: one should proceed assuming neutrality for firms, i.e. a cost compensation in other forms (we have supposed it to be in terms of wage reduction, *ceteris paribus*)<sup>8</sup>.

In table 7, we have taken into consideration a total deposit to the pension fund amounting to 6.91% of the wage for TFR and to 1% for the other two contributors (employer and employee).

---

<sup>8</sup> Obviously, the assumption is valid a priori, i.e. when the workers (better, trade unions which represent them) have to negotiate with the firms. After the negotiation, assuming that the agreement allows the individual the possibility of rerouting TFR to a pension fund, the expected consequences of the aggregate choices have already found a kind of compensation, representing for the individual a sunk cost, that must no more influence his choice.

**Table 7 – Net global benefit\***

Low taxation			
Years/interest rates	5%	6%	7%
10	-0.087	-0.115	-0.124
20	-0.043	-0.059	-0.074
30	0.008	-0.005	-0.017
40	0.062	0.050	0.041
Medium Taxation			
Years/interest rates	5%	6%	7%
10	-0.080	-0.107	-0.116
20	-0.030	-0.044	-0.057
30	0.027	0.018	0.008
40	0.087	0.078	0.072
High taxation			
Years/interest rates	5%	6%	7%
10	-0.057	-0.086	-0.094
20	-0.006	-0.020	-0.033
30	0.054	0.047	0.038
40	0.119	0.11	0.105

\* contribution rate: 6.91% from TFR; 1% from employer; 1% from worker

In table 8, instead, an equal combination of the different financing forms is considered.

The following conclusions can be drawn from the results:

- assuming that TFR financing exceeds the other two rates, fiscal measures have no relevant effects, even after the repeated corrections made to the original 1992 legislation. Table 7 shows negative benefits for periods shorter than 20 years, approaching zero for thirty-years periods, and visible only for forty-years periods;
- in case the financing from TFR is equal to the other two rates, the benefit is always positive, and, thanks to the correlation with taxation and maturity, becomes relevant for medium-high taxations and maturities;
- finally, the benefit is always positive and noticeable for independent workers (for whom only the worker contribution is valid; see table 5.6 in the full version of the Report), in particular with medium-high taxations and maturities.

**Table 8. – Net global benefit\***

Low taxation			
Years/interest rates	5%	6%	7%
10	0.174	0.174	0.176
20	0.189	0.192	0.195
30	0.207	0.212	0.216
40	0.227	0.229	0.235
Medium taxation			
Years/interest rates	5%	6%	7%
10	0.231	0.234	0.237
20	0.256	0.262	0.268
30	0.284	0.294	0.302
40	0.312	0.320	0.330
High taxation			
Years/interest rates	5%	6%	7%
10	0.294	0.299	0.304
20	0.329	0.340	0.350
30	0.368	0.385	0.398
40	0.407	0.420	0.436

\* contribution rate: 1% from TFR; 1% from employer; 1% from worker

Once more it can be inferred that the hopes for a quick and strong take-off of supplementary pension system through TFR financing were and remain rather weak. To this purpose, neither fiscal facilitations have efficacy, not it seems appropriate to make them more generous (with relevant costs for public finance), because TFR (as explained *sub* 4.1) has still got important functions in the workers' portfolio.

Fiscal convenience is instead more effective for self-employed workers, and in case of an equal combination of the different financing forms, feasible for employees if their seniorities are prior to 1993.

In any case, since there exist other motivations for families beyond social security concerns, the pure fiscal manoeuvre would not easily succeed, if not accompanied (as suggested *sub* 4.2) by a brave (although gradual) programme to reduce the weight of the compulsory PAYG component.