

PENSIONS IN ITALY: WORK IN PROGRESS

Work on pensions has been in progress in Italy since 1992. The Italian pension system, essentially a public Pay-As-You-Go pension system, must face up to a particularly marked ageing of the population. The Dini reform introduced a notional defined contribution system; the Berlusconi, then Prodi reforms pushed back the minimum retirement age. We present a general equilibrium analysis of the macroeconomic impact of the last two reforms and their effect on the viability of the pension system. Our simulations show that their effectiveness will only be temporary and important political decisions are still to be made.

Analysing the economic consequences of ageing is particularly interesting in the Italian case, which presents one of the most worrying demographic situations in the world. The Italian fertility rate has fallen to a very low level (1.32 in 2005), far below the rate of 2.1 that ensures replacement of the generations. Between 2000 and 2050, the working-age population (20 to 64) will fall by 23% according to the central hypothesis of the national statistics institute (Istat)¹. The dependency ratio (number of people aged 65 and over compared to the working age population) will rise from 29% to 68% between 2000 and 2050 (graph 1).

The Italian pension system, which is almost entirely based on a public Pay-As-You-Go pension system, will be subject to a severe test.

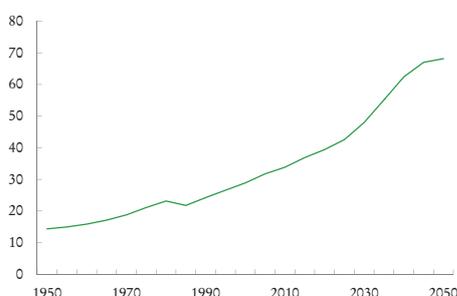
Several reforms were introduced in the 1990s to face up to it: the Amato reform (1992), Dini reform (1995), then, since 2004: the Berlusconi (2004) and Prodi (2007) reforms.

The Dini reform, in particular, introduced the notional defined contribution system that Sweden adopted in 1998 and which is currently being debated in France, notably around the proposals put forward by A. Bozio and T. Piketty². The reforms from 2000 on set back the minimum retirement age. After presenting the content of these reforms, we will propose an analysis of the most recent, both in terms of the viability of the pension system and in terms of the macroeconomic impact.

■ The content of the reforms

The main objectives of the reforms in the 1990s were to reduce pension expenditure in relation to the GDP, to achieve greater coherence between the different regulations and to correct several biases in the system. For example, the Italian pension system encouraged employees to retire very early; in fact, working one year less reduced the pension benefits by a small amount. This is one of the reasons that in 2005 the average effective retirement age was 59.7 years old against an average of 61.1 in the EU-15 (Eurostat data). The Italian pension system

Graph 1 – Changes in the dependency ratio - 1950-2050 (%)



Source: Istat.

1. Istat (2006), *Previsioni demografiche nazionali, 1° gennaio 2005 - 1° gennaio 2050*.

2. A. Bozio & T. Piketty (2008), "Pour un nouveau système de retraite - Des comptes individuels de cotisations financés par répartition" ("For a new pension system - Individual contribution accounts financed by redistribution"), CEPREMAP, *Booklet* no 14.

also included an anomaly arising from the existence of two different criteria for the right to retire: either the age criterion (55 for women/60 for men) for the *old age pensions*, the number of contribution years required being very small (15 years contributions); or the contribution years criterion (35 years in the private sector and only 15 years/20 years in the public sector) for the *seniority pensions*, without an age condition.

The Amato reform reduced the pension system expenditure by indexing pension benefits on prices, and no longer on wages, by increasing the *legal age* giving the right to the old age pension (60/65) and the number of years of contributions necessary (20 contribution years); by progressively increasing the number of years of contributions needed for a length of service pension in the public sector to the level in the private sector (35 years).

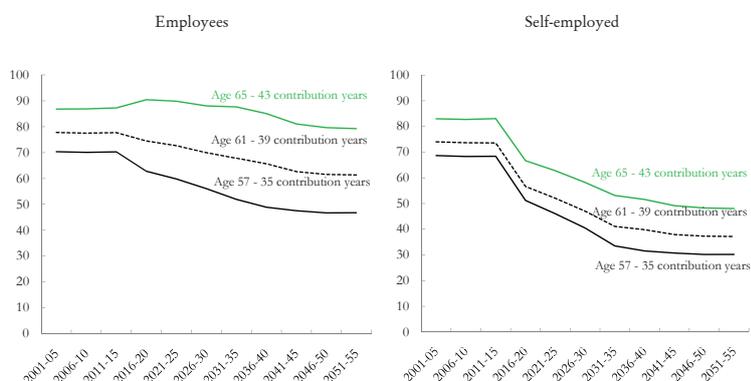
The Dini reform (law 335/1995) introduced *notional defined contribution* system in the computation of pension benefits, which made the pension of each pensioner depend directly on the contributions that he had paid. The previous method consisted in calculating the pension on the basis of the average wage received during the last 10 years (or remuneration of the last 15 years for self-employed). This calculation method has been retained for people who, in 1995, had over 18 years subscriptions. The notional defined contribution method will be fully applied to people who started working after 1995. Their pension benefits will be determined by the contributions paid throughout their careers and capitalized at the average nominal GDP growth rate, multiplied by a transformation coefficient set by law; this coefficient will vary depending on the retirement age and will, in principle, be revisable every ten years depending on demographic changes, notably life expectancy. Finally, for individuals having less than 18 years contributions before 1995, their pension benefits will be determined by the mean of the pension calculated according to the old and new methods, *pro rata* to their contribution years before and after 1995.

The Dini reform thus corrected the bias noted above: by linking the amount of pension benefits to that of contributions paid, it reduced the incentive for early retirement. In addition, the Dini reform fixed a *minimum age* (57) for the old age pension, removing the anomaly of the previous arrangements.

The Amato and Dini reforms strongly reduced the generosity of the pension system. The replacement ratio (ratio between the pension as first received and the last wages earned) will reduce from 2015, with the start of the introduction of notional defined contribution system, and still more markedly from 2030, when these become the only basis for pension calculations (graph 2). The individuals who experience this fall most sharply will be those who pay the least in contributions: salaried employees who

retire very early and self-employed people whose contribution rate is low (20 % against 33 % for employees).

Graph 2 – Change in replacement rates (%) as a function of retirement age, following the Amato and Dini reforms



Source: Author's calculations.

However the Amato and Dini reforms will not be sufficient to counter the demographic problem due to the fact, notably, of the long transition phase, before the full application of the notional accounts. This is why the Berlusconi government introduced a new reform in 2004 (law 243/2004) increasing the *minimum retirement age*. From 2008, this age has been set at 60. However, in 2007, in particular given the strong opposition exerted by Italian's trade unions, the Prodi government replaced the Berlusconi reform by a softer one: the minimum retirement age is fixed at 58 from January 2008 and will gradually increase over time up to 62. From 2009, this minimum age will change to 59 and employees will retire if the sum of their age and the number of years of contributions is equal to 95. From 2011, the minimum retirement age will be increased by one year (an age of at least 60 and an age+contribution years equal to 96 will be necessary); from 2013, it will again be increased by one year (61 and age+contribution years equal to 97).

■ Macroeconomic impact

We analyse the Berlusconi and Prodi reforms over the period 2005-2055, comparing them to a base scenario that takes the reforms in the 1990s into account³.

Population ageing not only puts the financing of the social security systems under considerable stress, it also affects the macroeconomic system. The deficits generated by the pension system reduce national savings and thus investment⁴, which causes a general slowing of growth.

3. For a complete presentation of this work, cf. Riccardo Magnani (2008), "A general equilibrium evaluation of the sustainability of the new pension reforms in Italy", *CEPII Working document*, no. 2008-25.

4. We are here arguing in the context of a closed economy. This allows us to have an endogenous interest rate, which appears to us to correspond most correctly to the situation where population ageing is a worldwide phenomenon.

In addition, ageing strongly affects labour supply (due to the fall in the working age population) and capital (due to differences in savings behaviour between generations), which induces important changes in wages, capital accumulation and growth. All of this will have an impact contributions paid and the value of pension benefits, and then on the equilibrium of the pension system. To take this interdependence between the pension system and the macroeconomic system into account, the analysis is carried out by using a general equilibrium framework (See box).

The basic scenario is characterised by a situation where the marked drop in the working age population depresses growth. This negative effect of demography is partially compensated, in this scenario, by changes in productivity and investment:

- ◆ ageing implies a lower labour supply, which induces an increase in wages and a reduction in interest rates. These changes, coupled with the increase in life expectancy, turn young people towards longer studies. This has a positive effect on the (endogenous) productivity growth rate, which rises from 1.5% in 2005 to 1.7% in 2055.

- ◆ the marked drop in the generosity of the pension system (related to the Amato and Dini reforms) leads individuals to save more. The investment rate increases until 2020; on the other hand, after 2020, the investment rate decreases due to the very large deficits of the pension system.

These changes in investment and productivity are far from compensating for the negative effect related to the drop in the working age population. In total, in the base scenario, the GDP growth rate decreases throughout the period: it drops from 2% in 2005 to 0.7% in 2045.

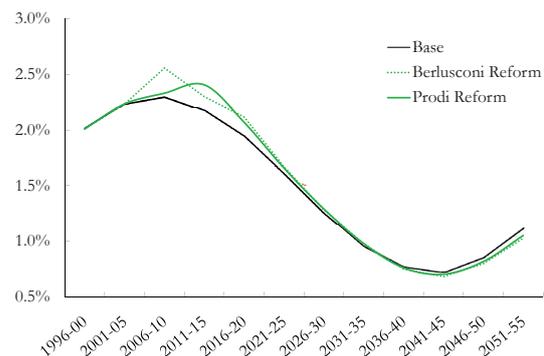
Compared to this scenario, the new reforms have a direct positive effect on the labour supply. The increase in the retirement age, in particular with the Berlusconi reform, allows (assuming that the labour supply of older people meets

an equivalent demand) an increase in the employment rate. By increasing the labour supply, however, the reforms cause a fall in wages (which thus grow less than in the base scenario) and an increase in interest rates (which will thus fall less than in the base scenario). In addition, the increase in retirement age, and thus in the total time devoted to work, leads young people to invest more in human capital. However, this investment is not translated into a more favourable change in productivity growth because another effect plays in the opposite direction: productivity depends on the average human capital stock of all working individuals; the larger proportion of older people makes this mean fall.

In addition, the two Berlusconi or Prodi reforms have, compared to the base scenario, a negative effect on investment because individuals expect to work and thus earn more, which leads them to increase their consumption level.

In total, compared to the base scenario, the two reforms, and in particular the Berlusconi reform, provides stronger GDP growth until 2025. After 2025, in contrast, the growth rates are very similar (graph 3).

Graph 3 – Change in GDP growth rate



Source: Author's calculations.

BOX – MAIN MODEL CHARACTERISTICS

- ◆ Overlapping-generations model of the type of Auerbach-Kotlikoff (1987) with immigration and an endogenous growth mechanism based on the accumulation of human capital *à la* Lucas (1988).

- ◆ Individual heterogeneity based on:

- age (15 generations, which coexist at each period: 20-24, 25-29, ..., 90-94).
- origin (natives or immigrants).
- professional status (waged or self-employed).

- ◆ The individuals maximize their expected intertemporal utility, given an intertemporal budget constraint, and decide:

- the optimal consumption and leisure profile.
- the optimal quantity of time devoted to studies when the individual is aged 20-24 (an additional year devoted to studies allows the individual to increase his productivity level throughout his active life, but causes the loss of a year's salary; in the optimum, the lost year of salary must coincide with the present value of all the salary gains obtained due to the decision to study for an extra year).

- the optimal bequest to be left in the case where the individual survives to the age of 95.

- ◆ Endogenous growth mechanism *à la* Lucas (1965): the productivity growth rate is proportional to the average level of the human capital stock held by individuals who are working at a certain date. This stock, related to the years of study, depreciates over time.

- ◆ Detailed modelling of the pension calculation rules and taking into account of:

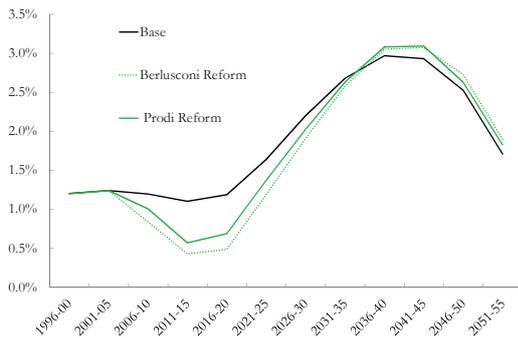
- direct pensions
- invalidity pensions
- reversion pensions

The model is calibrated so as to reproduce the main macroeconomic data for 2005 (GDP, and the ratios of investment and public expenditure in GDP), employment rates by age class and origin (immigrant or not) and the main pension system characteristics (ratio number of pensioners/number of workers, ratio of expenditure/GDP).

■ Effects on the pension system

The reforms introduced in the 1990s are not sufficient for the pension system to be able to face up to the demographic problem: from 2015, the pension system deficit increases, rising from 1.2% of GDP in 2015 to 3% in 2040 (graph 4), the pension system expenditure rises from 13% of GDP in 2015 to almost 15% in 2040. After 2040, the deficit compared to GDP starts to fall, due to the notional accounts, but it is still very high in 2055: 1.7%.

Graph 4 – Change in the pension system deficit as % of GDP



Source: Author's calculations.

Compared to this base scenario the Berlusconi and Prodi reforms induce an important reduction in the deficits in the short and medium terms. In 2015, the Berlusconi reform would have reduced the deficit compared to GDP by 0.7 percentage points; the Prodi reform reduces it by 0.5 points.

However in the long term, the increase in retirement age becomes completely ineffective. From 2035, the deficit compared to GDP is, in both cases (Berlusconi reform as for Prodi reform) the same as in the base scenario; after 2035, this ratio becomes higher. In fact, in the years immediately following the introduction of the reform, the increase of the retirement age improves the financial situation of the system: employees pay contributions for longer whereas pensioners benefiting from the increase in pension benefits are still few in number. With time, in contrast, a larger and larger number of pensioners obtain an increase in the value of their pension

benefits linked to their previous contributions. Sooner or later, the increase in contributions received by the pension system is compensated by the increase in the pension benefits paid to those who have had to defer their retirement. At that moment, the reform becomes ineffective. This is what happens in 2035.

However, note that the simulations have been performed without introducing the revision in transformation coefficients, which, according to the 1995 law, should take place every ten years to take account of the increase in life expectancy. Evidently, a reduction in the transformation coefficients will allow a distinct improvement in the pension system's financial situation, but this will be done at the expense of pensioners who will see the value of their pension benefits further reduced. This leads us to think that though the revision of the transformation coefficients may be desirable strictly from the viewpoint of the management of public finances, it will be very difficult to get it accepted because it places the whole burden of the reform on the pensioners' shoulders.

If a reduction in pension benefits is politically inapplicable, an increase in contributions (without even considering the negative implications on the labour market) will encounter long-term effectiveness problems due to the fact that the notional defined contribution system implies an increase in the value of pension benefits (directly linked to contributions). A greater openness to immigration could also contribute to improving the financial conditions of the system, but it will not suffice to settle the ageing problem.

Without new reforms, the pension system will continue to produce important deficits, which must be financed by increasing the fiscal pressure. Italy must therefore decide by how much to further reduce the generosity of its pension system, increase contributions (whilst knowing that the effectiveness of this measure is limited), and/or turn to birth or migration policies that will reduce the dependency ratio.

Riccardo Magnani
riccardo.magnani@cepii.fr

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EDITORIAL OFFICES
Centre d'études prospectives
et d'informations internationales,
9, rue Georges-Pitard
75015 Paris.
Tél. : 33 (0)1 53 68 55 14
Fax : 33 (0)1 53 68 55 03

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DTP:
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