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13 Generational Accounts for Italy

Nicola Sartor

13.1 Introduction and Summary

Among industrialized countries, Italy represents one of the most interesting cases for applying the generational accounting methodology. The Italian economy is characterized by one of the world's largest public debts, a very generous pension system, and the world's lowest fertility rate. These three features produce effects on public finances that reinforce themselves in the long run.

Since the 1980s, stabilization of the ratio of public debt to GDP has represented the main fiscal policy target. According to official figures, the target was reached in 1995. However, conventional debt and deficit measures, by focusing on the very short run, ignore the pressures that the current demographic transition is placing on the budget. Because the elderly dependency ratio will increase by 50 percent in the next 20 years, public expenditures on health and pensions will increase substantially; at the same time, revenues will decrease insofar as an increasing fraction of the population will be retired. By taking the current demographic transition into account, generational accounting analysis shows that the debt outlook differs substantially from the picture obtained from conventional approaches. It is shown that most of the imbalance in current Italian fiscal policy has nothing to do with officially labeled government debt and that fiscal consolidation in excess of what is needed for achieving short-term debt stabilization is required. When considering the future increase in per capita net taxes required to keep public debt on a stable path, a severe intergenerational imbalance against future generations emerges. However, a substantial fraction of it will be removed by the long-run effects of the pension reform enacted in 1995.

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Fig. 13.1 Ratio of public debt to GDP (central government)
Sources: Ministero del Tesoro (1988) and Banca d'Italia, *Relazione Annuale* (various years).

13.2 Public Debt in a Historical Perspective

The existence of a large stock of financial liabilities issued by the public sector is a distinctive feature of Italian economic history. On three occasions (1897, 1920, and 1943) the relative size of debt reached peaks whose orders of magnitude were close to current values (around 120 percent of GDP; see fig. 13.1). Over the years, public debt averaged 90 percent of GDP, with the exception of the 25-year spell of high economic growth and financial stability that followed the Second World War. From a bird's-eye view, the years between 1946 and 1971 appear to be a favorable exception to the historical pattern, as the debt-to-GDP ratio was virtually constant at around 30 percent.

The Italian state, founded in 1861, was burdened from the very beginning by a large debt: its origin goes back to the parliamentary decision to take responsibility for the financial liabilities issued by the previous states,[1] which totaled 45 percent of GDP. The incidence of debt doubled in the following 10 years, as a consequence of the large burst in military spending needed to gain the eastern territories of the nation (Veneto) from Austria. In 1870, when the

1. The decision was shared by the majority and opposition parties. As pointed out by Zamagni (1992), the hypothesis of repudiating the debt issued by the various states previously based on Italian territory was rejected in order to preserve the creditworthiness of the Italian economy in European financial markets. The relevance of Italian standing in the international financial community, in turn, reflected the structural need for foreign savings, aimed at financing economic development. At the same time, oblivion of the previous states was obtained by converting the various debt instruments into a new Italian public debt. Following the experience of the French revolution, the converted debt was accounted for in the "Great Book of Public Debt."

process of creating the new nation ended, the magnitude of public debt was close to the value of the domestic product (96 percent).

While the government's current target of putting financial liabilities on a declining path has not yet been fully achieved, past experience shows that on three occasions the relative size of the Italian debt declined substantially (fig. 13.1). A common feature of all the episodes of debt absorption is the positive role played by economic growth,[2] reinforced by partial debt repudiation in two out of three cases. In the 1898–1912 period, a moderate but steady income growth rate was the major source of stabilization, supplemented by fiscal consolidation in some years. The first (voluntary) repudiation occurred under dictatorship. It took the form of debt consolidation[3] and strengthened the effects of prolonged fiscal discipline during the 1921–27 period. Debt monetization was the form the second (involuntary)[4] repudiation took in the years following the Second World War. In only four years, an average inflation rate above 100 percent per year reduced the 118 percent debt-to-GDP ratio, which had peaked in 1943, to a quarter of its previous level.

From the foundation of the Italian republic (1948) to the end of the sixties, the relative size of public debt fluctuated around 30 percent. A distinctive feature of this period of stability is the favorable macroeconomic conditions summarized in figure 13.2 by a positive real interest rate, which was, however, always lower than the rate of output growth.[5] Under these circumstances, the government could even run "an honest Ponzi game" (Buiter 1985) by financing interest payments through new debt issues. Starting in 1964, the government not only followed the above fiscal rule but even ran a primary deficit (fig. 13.3). Up to the end of the seventies, the rise in public debt was moderate, due to the

2. For a detailed account of past debt policy, see Toniolo and Ganugi (1992) and Zamagni (1992).

3. In 1926, mandatory conversion of public liabilities followed the failure of the voluntary conversion offered two years before. Outstanding debt was converted into consols, yielding a 5 percent coupon. Eight years later, the consols were converted into 25-year bonds, yielding a 3.5 interest rate. The decline of the debt-to-GDP ratio would be larger than it appears in fig. 13.1 if public debt were evaluated at market value. According to Alesina (1991), after the two conversions debt holders suffered an overall loss estimated to be over 50 percent of face value. As a consequence of the loss of reputation, the Treasury faced increasing difficulty in issuing new debt during the next 15 years.

4. According to the interpretation proposed by Toniolo and Ganugi (1992, 137), hyperinflation was initially tolerated by the government, which tightened monetary policy after some delay.

5. The data shown in fig. 13.2 have to be considered with some caution. Due to lack of information, the interest rate refers to the effective ex post rate relative to medium- and long-term bonds (*buoni del tesoro poliennali*) and not to the average interest rate paid on government debt. During some years, the former may not reflect overall financial conditions, as financial markets were not fully developed.

Note that the excess of the growth rate over the interest rate need not imply dynamic inefficiency. As shown by Abel et al. (1989), in a multisector stochastic economy the interest rate on government bonds need not be equal to the marginal product of capital. Under an alternative test, based on the comparison between cash flows generated by capital and the level of investment, the authors dismiss the dynamic inefficiency hypothesis for Italy as well as the remaining G-7 countries in the 1960–84 period.

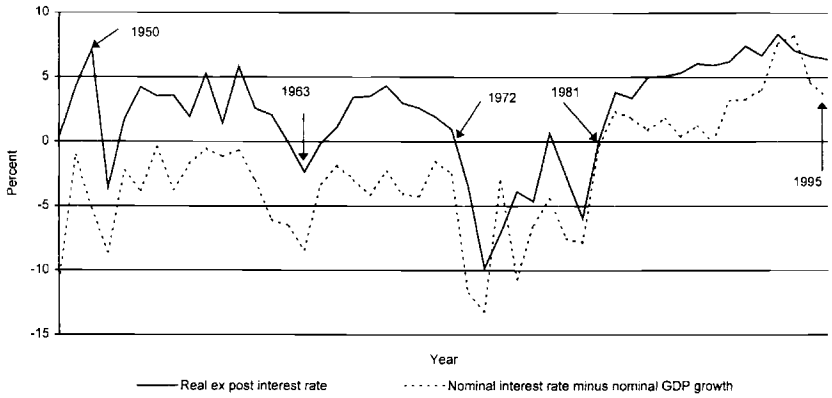

Fig. 13.2 Interest rate on medium-term government bonds
Sources: Ministero del Tesoro (1988) and Banca d'Italia, *Bollettino Statistico* (various years).

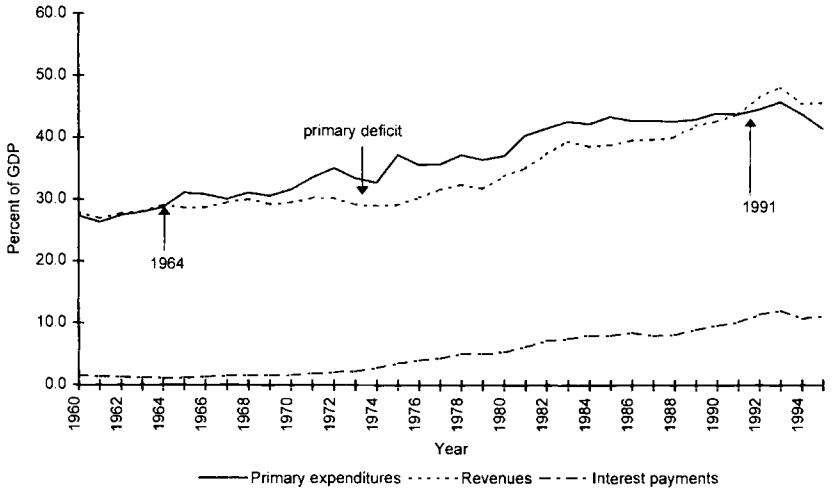

Fig. 13.3 General government revenues and outlays
Sources: Morcaldo (1993) and Banca d'Italia, *Relazione Annuale* (various years).

accommodative stance of monetary policy. Figure 13.2 highlights this situation by showing the persistence of output growth in excess of the interest rate, and also a negative ex post real interest rate over the 1973–80 period.

At the beginning of the eighties monetary policy changed course, following the restrictive stance originating in the United States. The sharp increase in interest rates, which appeared to exceed output growth for the first time in the history of the Italian republic (fig. 13.2), put public debt on a path that would

be unsustainable in the long run. The need for a change in budgetary policy was clearly perceived by the prime minister, who in 1985 proposed the first financial plan to reverse debt dynamics.[6] Unfortunately, belief in the need for fiscal tightening was shared neither by all ministers nor by the Parliament.

Two main reasons may be cited to explain the lack of willingness to undergo fiscal discipline. The first is the absence of any macroeconomic sign of financial instability. The frequent calls for fiscal tightening, requested by the central bank and by international organizations such as the International Monetary Fund and the Organization for Economic Cooperation and Development (OECD), appeared to the political body to address a theoretical need not founded on any tangible phenomenon. The second reason, which has been stressed by the recent literature on credibility and politics, lies in the way political institutions shape policymakers' incentives (see, e.g., Persson and Tabellini 1990; Grilli, Masciandaro, and Tabellini 1991). Parliamentary instability and polarization, on one hand, and disagreement among members of coalition governments, on the other, determine the way the future is weighed and make postponement of unpopular policies a rational option. As shown by Grilli et al. (1991), these features seem to explain the existence of large debts and deficits in some industrialized countries. In the Italian case, government durability (estimated in the 1950–90 period at 0.95 years) appears to be the major culprit because, for any individual cabinet, the probability of facing the bad consequences of deficit spending was very low. Under these circumstances, the only phenomenon capable of triggering significant fiscal tightening seems to have been the appearance of a balance-of-payment disequilibrium, which made adjustment unavoidable.[7]

An important opportunity for financial recovery was missed in the second half of the eighties. Average output growth of almost 3 percent per annum would have allowed debt stabilization through the implementation of a small discretionary tightening, as sustained growth (1) reduced the interest-growth rate gap and (2) automatically improved the budget via the effects of built-in stabilizers. This opportunity was clearly understood by the government, which proposed various plans for fiscal consolidation based on keeping (1) current outlays constant in real terms and (2) total revenues a constant share of output,

6. In the 1985–86 period, three different financial plans were proposed by the prime minister. In 1986, the Parliament changed the procedure for determining the annual budget, introducing the "Document for Economic and Financial Planning." The document aimed at framing the annual budget within a three-year macroeconomic and financial scenario consistent with debt stabilization. A common feature of those plans was (and still is) represented by the tendency to refer to a too-favorable macroeconomic environment. This, in the end, would underestimate the need for fiscal tightening and for additional restrictions to be adopted during the financial year, thus undermining the government's credibility.

7. This was the case in 1976–77 and in 1991. According to Toniolo and Ganugi (1992), fiscal adjustments in the 1876–1947 period were often triggered by external constraints. This tendency can also be found at the present time. The sole argument for fiscal tightening is represented by the need to fulfill the Maastricht criteria for joining in European Economic and Monetary Union.

thus letting economic growth make the adjustment. In contrast, actual fiscal policy was characterized by simultaneous discretionary increases in revenues and expenditures. Moreover, despite medium-term financial planning, a large part of the restrictive measures deliberately caused one-off effects. In the 1986–90 period, Sartor (1998b) estimates that 46 percent of the effects of deficit-reducing policies had disappeared in the short run. In 1987—a year of general elections—the above proportion peaked at 80 percent. Only in 1991, after a severe exchange rate crisis, was a primary surplus obtained (fig. 13.3). Its size, however, was insufficient to stabilize the relative weight of public debt.

Financial improvement continued in the 1991–95 period, mainly through increases in taxes and social security contributions (the effective overall rate was increased by 1.8 percentage points in the 1990–95 period). Spending cuts were obtained by freezing the wage bill (whose ratio to GDP declined by 1.3 percent in the same period) and investment (its share in GDP decreased by 1.0 percent). If this short-term policy is not backed up by some permanent reduction in the economic role of the public sector, primary spending is likely to reverse its recent downward trend in the coming years. So far, the only structural change to be enacted has been the reform of public pensions. However, because the phase-in period is very long, the reform will not have major effects in the next 10 years (see Sartor 1998a on this point).

The 15-year delay in making fiscal policy consistent with the tight monetary policy followed since the early eighties has caused a dramatic increase in debt, whose relative weight more than doubled, rising from 58 to 120 percent of GDP. The permanent cost of the delay is summarized by the size of the primary surplus needed to stabilize public debt in the short run. Assuming a 3.5 percentage point difference between the interest rate and the rate of output growth—as will be done for the generational accounting simulations—a primary surplus equal to 2 percent of output would have allowed debt stabilization in 1981. Fifteen years later, the debt-stabilizing surplus amounts to over 4 percent.

13.3 The Economic Role of the State

While the relevance of debt and deficits puts Italy among the countries following an unorthodox financial policy, the level and structure of primary public expenditures (e.g., net of interest payments) are similar to those found in the rest of Europe, especially the continental countries. During the first half of the century, public intervention was mainly aimed at closing the gap between the young economy and its more developed European partners. Public policy played a pervasive role in sustaining industrial development and creating basic infrastructures for the unified country, thus closely resembling the German experience. Notwithstanding the relevance of interest payments,[8] total public

8. Toniolo and Ganugi (1992) estimate that in 1870 debt servicing absorbed 38 percent of public expenditures.

spending at the beginning of the century was 16.2 percent of GDP (France and Germany reached 14.4 and 11.5 percent, respectively); in 1950, public spending totaled 30.2 percent of GDP, 11.1 points less than France and 3.2 less than Germany (Brosio 1993, table 8.1). The major legacy of the active role played by the state in economic development, however, does not show up in national accounts. A large proportion of companies are owned, directly or indirectly, by the public sector,[9] which until very recently showed no willingness to cease its improper role of entrepreneur. Measuring the relevance of publicly owned corporations by considering the number of employees relative to total employment, the OECD (1993) estimates that in 1988 the market share of public enterprises was 15.8 percent (the equivalent figures for France and Germany are 13.3 and 8.8 percent, respectively).[10]

The most significant increase in public spending occurred in the 1960–90 period:[11] the share of primary expenditures rose from 27.5 to 44 percent of GDP. The increase in public employment was even larger, as labor hoarding was used as a short-run remedy for structural unemployment. The number of public employees more than doubled, rising from 1.6 to 3.6 million. Their share of total employment rose from 7.6 to 15.5 percent.

Expenditure increases were driven by the expansion of the welfare system and public education (fig. 13.4). The main characteristics of the various structural reforms can be summarized as follows: (1) Between 1962 and 1969, compulsory schooling was extended and access to universities eased. (2) In the 1955–65 period, public health care programs increased their coverage from 65 to 90 percent of the population. Starting in 1978, a uniform and universal public health program replaced the heterogeneous regimes. (3) Public pension coverage was gradually extended to workers (both dependent and self-employed) in all economic sectors. Pension financing was gradually switched from fully funded to pay as you go. Moreover, the generosity of the system was increased by linking benefits to income earned in the last few years of work.

Franco (1993) estimates that 59.7 percent of the increase in the ratio of the above spending categories to GDP was determined by the extension of entitlements to larger shares of the population, 48.6 percent was caused by the increase in the amount of real per capita benefits, while demographic factors played only a limited role (13 percent). On the other hand, economic growth

9. As is well known, the United Nations System of National Accounts classifies firms in the market sector and the general government on the basis of the nature of their economic processes, irrespective of the owner of the capital. Thus a company producing goods and services to be sold on the market is reported in the market sector, even if it is fully owned by the state and sells at prices below average costs.

10. The largest stake is held in the energy sector (85.4 percent), followed by transport and telecommunications (81.4 percent) and finance and insurance (50.0 percent). Within the European context, the size of the latter sector appears particularly relevant. The French and German figures are 34.0 and 30.6 percent, respectively.

11. A detailed analysis of the major causes of the increase in public spending can be found in Franco (1993), from which data reported in the text are taken.

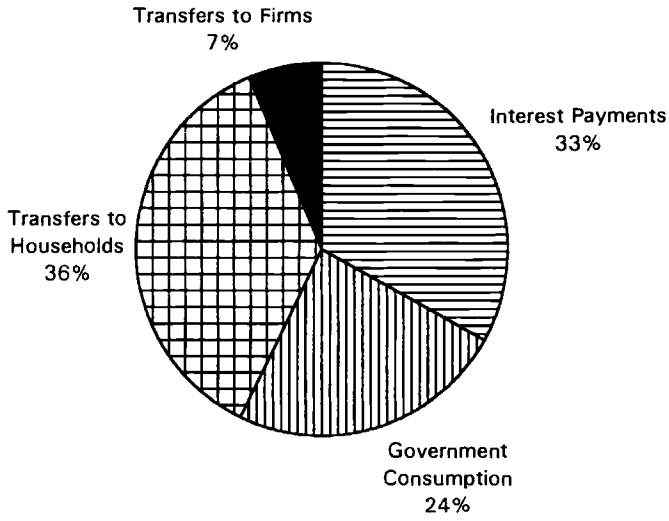

Fig. 13.4 Increase in public expenditures, 1960–90 (breakdown of the change in the ratio to GDP)

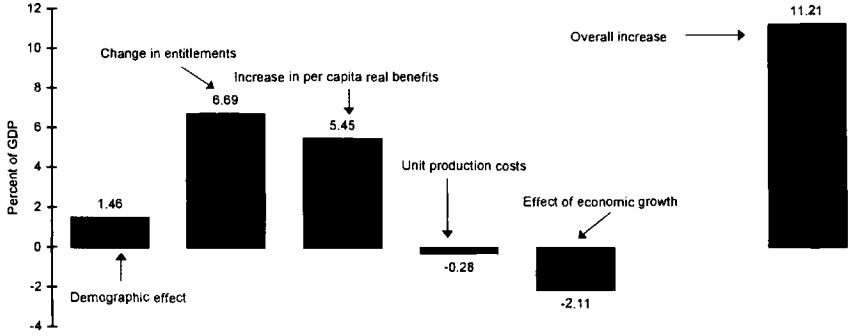

Fig. 13.5 Decomposition of the growth of welfare payments and public education, 1960–90
Source: Franco (1993).

and a moderate decline in production costs dampened the rise in the ratio (fig. 13.5).

At the end of the expansion process, the Italian welfare system closed the gap vis-à-vis the European countries. In the 1970–90 period, its relative weight—proxied by the size of current transfers to households relative to GDP—switched from 0.5 percentage points below the European Community average to 1.6 points above. Its dimension (18.5 percent of GDP) remained smaller than in France and the Scandinavian countries. However, the Italian

system has noteworthy peculiarities, some of which are reflected in the composition of benefits. Unemployment allowances are low, while pensions are very high. In 1990, the former absorbed only 2 percent of welfare payments (equivalent to 0.4 of GDP);[12] the latter, 82 percent (or 15.2 percent of GDP—one of the largest figures among OECD member countries). This situation reflects the improper use of public pensions as a tool for social assistance and, in the case of public employees, as a form of deferred income payment. The anomalies in the use of public pensions can be summarized in three stylized facts: (1) Long-term unemployed living in the least developed areas became eligible for invalidity/disability pensions to some extent regardless of their real health conditions.[13] (2) Anticipated old-age pensions are used as a tool for reducing overmanning in declining industrial sectors. (3) Public employees are entitled to a seniority pension provided they have paid contributions for 20 years; per capita benefits equal 2 percent of the last salary per each year of contribution, irrespective of the age of the recipient.[14]

While the growth of the welfare system persisted during the entire 1960–90 period, significant spending increases originated from the active role that the budget played in alleviating the negative effects produced on firm profitability by the supply-side shocks of the early seventies. The first shock was caused by struggles over income distribution between profits and wages. The second was the well-known deterioration of terms of trade due to the increase in the price of oil. Given the downward inflexibility of real wages (due to the indexation

12. Given the severe legal constraints on the possibility of making workers redundant, unemployment is concentrated among young adults facing the labor market for the first time. As these individuals are not eligible for unemployment benefits, their care is the responsibility of their families. On the other hand, temporary redundancies among the employed are dealt with under a compulsory insurance scheme. Firms pay payroll taxes whose revenue is used to finance 80 percent of wages to workers certified to be temporarily redundant.

13. Note that this situation does not depend only on individual misbehavior but also on rather peculiar official rules. As an example, Law 639 passed in 1970 ruled that decisions about the concession of invalidity pensions should take into account the overall social and economic conditions prevailing in the province where the claimant is living. As noted by Onofri (1992, 41), by 1984—when the above law was abrogated—the number of holders of invalidity pensions had almost doubled.

14. As a consequence, the internal rate of return on pension contributions is extremely variable, depending on individual circumstances. Several alternative interpretations can be proposed for explaining this rather awkward situation: (1) Because Italian society as a whole was not ready to accept female participation in the labor market, early pension benefits allowed many women to return to domestic work while children were still living at home. (The minimum working period could be further reduced to 15 years if women were married. When the seniority pension for public employees was introduced, in 1954, the Parliament asked the government to pass "rules that would induce married women to go back to their households"; on this point, see Castellino 1996, 98). (2) By increasing the turnover of public workers, the preferential public pension system broadens the possibility of obtaining political consensus, as many members of the government have the annual opportunity of recruiting new workers. (3) The provision of benefits after 20 years of work represents an effective lock-in that allows public employers to lower wage differentials vis-à-vis the private sector (the system obviously causes negative effects on resource allocation and labor productivity).

mechanism) and the tight legal constraints on the possibility of laying workers off, both shocks severely squeezed profit margins. Under these circumstances, firm profitability was partially restored by the accommodative stance of monetary policy[15] and by public subsidies (fig. 13.4). Firm subsidization took two main forms: (1) workers declared temporarily redundant or employed in firms under restructuring received their wages out of public money (the so-called Cassa Integrazione Guadagni); (2) the effective rate of payroll tax was decreased by 9.6 percentage points in the 1976–80 period. The expansion in transfers to firms did not have any major effect on deficits,[16] because it was partly financed by direct taxes on wages, whose effective rate increased in the same period by 4.6 percentage points. This redistribution was partly reversed in the years after 1986, as profit margins recovered following the sharp decline in the price of oil.

Currently, the overall Italian budget does not appear to be out of range when compared to other EC countries (table 13.1). The primary budget is in surplus, and primary expenditures are below the average of the 12 European countries. On the revenue side, the Italian situation does not appear to be out of range either. The effective rate of taxes and social security contributions is equal to the European average.[17] Direct taxes and social security contributions yield an equal share of total revenues (36 percent each). Among direct taxes, the most revenue is yielded by the progressive tax on personal income, which is applied to all income sources except interest income.[18] Corporate taxes are levied at a high nominal rate (53.2 percent), although generous depreciation allowances, interest deductability, and a plethora of exemptions reduce the effective tax rate, which may even become negative in the case of debt financing (on this point, see OECD 1991). A substantial fraction of revenues are collected through indirect taxation (28 percent), particularly the value-added tax and taxes on petroleum products.

To sum up, the primary burden originates from the excessive deficits run up in the 1980–90 period. Briefly, it consists of large interest payments and an overall deficit, whose ratios to GDP are more than double the EC average.

15. As can be seen from fig. 13.2, the easy money policy produced negative ex post interest rates, redistributing income from households (the net creditors) to firms and the government (the net debtors).

16. In the 1976–80 period, the primary deficit declined by 1.9 percentage points of GDP (1.7 according to OECD estimates of the change in the cyclically adjusted deficit, which can be taken as a proxy for discretionary policy). The changes in effective tax rates mentioned in the text are taken from Giavazzi and Spaventa (1989), who provide a detailed assessment of Italian macroeconomic policy during the supply-side shocks.

17. However, nominal tax rates are often larger than in Europe overall, due to above average tax evasion and avoidance. Evasion is concentrated among small businesses and the self-employed, whose number is very large by European standards (over 20 percent of total taxpayers). Avoidance mainly affects revenues from corporations.

18. Interest income is taxed at a flat rate, currently 12.5 percent for government bonds and 27 percent for bank deposits.

Table 13.1 **Structure of General Government Appropriation Account, 1994 (percent of GDP)**

	Italy	Germany	France	United Kingdom	EC Average[a]	United States[b]
Government consumption	17.2	19.6	19.4	21.6	19.1	17.1
Gross public investment	2.3	2.7	3.2	1.8	2.7	1.7
Current transfers to						
Households	19.9	19.0	23.3	13.9	19.2	8.7
OASDI[b]	17.2	14.7	14.4	14.2	14.7[c]	n.a.
Firms	2.2	2.1	2.3	1.1	2.1	0.6
Total primary expenditures	43.5	45.9	51.6	40.0	45.3	33.0
Revenues from taxes and social security contributions	41.5	43.8	45.5	34.2	41.8	29.2
Primary deficit[d]	−1.7	−0.9	2.2	3.5	0.6	−0.2
Interest payments	10.7	3.4	3.6	3.3	4.4	4.6
Overall deficit	9.0	2.5	5.8	6.8	5.0	4.4

Source: European Commission.

[a]European countries excluding Italy.

[b]1993.

[c]Including Italy.

[d]Negative numbers are surpluses.

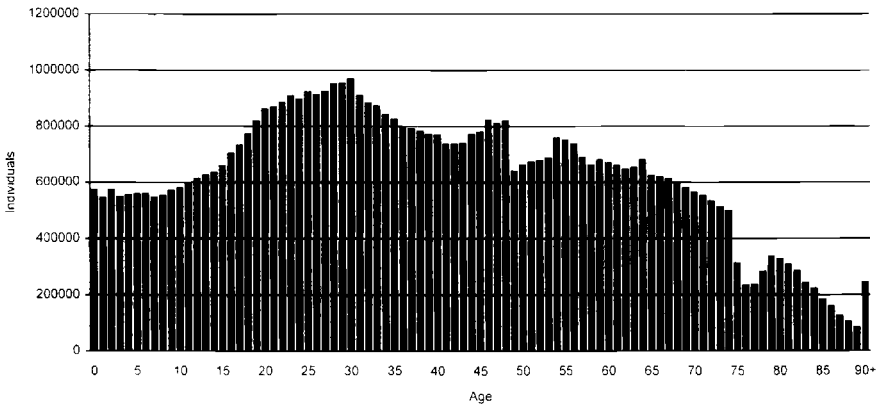

Fig. 13.6 Demographic structure, 1995
Source: ISTAT (1996).

13.4 The Demographic Outlook

The Italian population is expected to experience substantial changes in structure and size. Since 1977 the fertility rate has been below replacement; currently, having reached 1.2, it is the world's lowest. At the same time, life expectancy at birth is on an upward trend, having almost doubled during the first 60 years of the century.

The decline in fertility rates can be appreciated in figure 13.6, where the sizes of cohorts alive in 1995 are reported. The absolute number of births has dramatically decreased since the midsixties and appears to be stable for the past 10 years. This pattern represents three different phenomena pointing in the same direction: the number of women without descendants has steadily increased; the number of households with more than three descendants has declined substantially; and in recent years an increasing number of women are postponing the time for delivering their first child.[19] This overall trend, however, encompasses heterogeneous family structures and behaviors, depending on regional disparities.[20] Simplifying the matter, Italian families can be classi-

19. Forty percent of cohorts born in 1920 had three or more descendants. The proportion was halved in the next 40 years.

Comparing cohorts born between 1945 and 1958, the proportion of women having their first child at ages 30–34 increased by 38 percent. On the other hand, 20 percent fewer women delivered their first baby at ages 20–24. Women aged 25–29 displayed relatively stable behavior (Istituto Centrale di Statistica [ISTAT] 1993, table 9). Note, however, that the process of postponing childbirth has affected women living in northern Italy much more than those living in the south. Average age at the birth of the first child is two years lower in the south.

20. While these trends characterize the demographic outlook of many industrialized countries, Italy stands out in reconciling changes in reproductive behavior with the preservation of historical traditions and convictions; e.g., (1) childless couples have not increased their relevance (less than 15 percent of total marriages); (2) out-of-wedlock births remain a minority (6.2 percent of total births in 1990), notwithstanding the reduced number of marriages; (3) diverse living arrangements

fied into two different groups (ISTAT 1993): (1) The "northern," where the single child model has been prevalent for a long time (total fertility of cohorts born in the second half of the fifties is estimated to be around 1.5), and (2) the "southern," where 75 percent of families have two or more descendants, and a very limited number of women have only one child (less than 10 percent, compared to more than 35 percent in the north). Southern cohorts who have now completed their fertility period still maintain an average number of descendants above the replacement level.

The causes and consequences of the decline in fertility are attracting increasing public attention. Several explanations have been proposed for recent fertility trends, reflecting a multitude of elements (cultural, social, and economic) affecting households' reproductive decisions. On one hand, demographers point out the consequences of the exogenous change in the social role of women, characterized by greater equality vis-à-vis men: (1) the increasing female labor participation rate, particularly for career professions, and the consequent need to reconcile work with household responsibilities,[21] and (2) the substitution for "quantity" (number of children) of "quality" (proxied by per capita expenditures on health, education, and time devoted to child care). On the other hand, economists adhering to the "economics of the family" suggest that the decline in fertility is caused by the development of public pension schemes. According to the theory, generous old-age public transfers, by providing an effective hedge against the decline in earning capacity, substitute for redistribution from middle-aged children to elderly parents.[22] Among the consequences of population aging, policymakers are paying particular attention to projected increases in public expenditures on pensions and health.[23]

For the purposes of generational accounting, three different demographic scenarios have been developed, the first two based on projections recently published by the National Institute for Population Research.[24] All scenarios are

are still not common; and (4) the number of legal separations, though on the rise, is still comparatively low. For a recent description of the demographic changes and a suggested interpretation, see Palomba (1995).

21. In the past, the relationship between women's ages and labor participation rates followed an inverted W profile. After an initial increase, the participation rate decreased among cohorts aged 22–35 as many women withdrew from the labor market in order to have babies. When their children had grown up, their labor participation rate increased again, reaching a second local peak at age 43. Since 1986, the age-participation relationship has displayed a single peak, thus following an inverted V profile like that usually observed among men. For empirical evidence on this point, see Ambrosini and Rossi Sciumè (1995, 38, chart 2).

22. Recent empirical evidence for the Italian case is provided by Cigno and Rosati (1996).

23. The Treasury has recently delivered reports on future trends in public expenditures on education, health, and old age (see Ministero del Tesoro 1996a, 1996b, 1996c). An international comparison of national forecasts for public pension expenditures can be found in European Commission (1996).

24. See Istituto di Ricerche sulla Popolazione (1995). For the purposes of generational accounting, projections have been extended from the year 2044 to 2200. The fertility assumptions underlying the scenarios (rates respectively constant at the current level and increasing to 1.8 in the year 2044) resemble very closely the hypotheses adopted by the United Nations (1995) for scenarios C and M, respectively.

based on a three-year increase in life expectancy at birth in the next 20 years and a zero net migration rate.[25] The first projection assumes a gradual increase in the fertility rate, which in the year 2005 reaches 1.8 and remains constant thereafter. This scenario is adopted as a baseline, as the steady state fertility rate equals the completed fertility rate currently estimated for cohorts born in the second half of the fifties. The hypothesis is consistent with the very low total fertility rate currently observed provided the current level is a temporary phenomenon caused by the abovementioned postponement of age at first childbirth. In contrast, the second scenario (fertility constant at 1.3) pessimistically assumes that the current rate is structural and will prevail in the long run. The third scenario, rather implausible,[26] assumes that the fertility rate will rise to 2.1 (the replacement rate) in the next 20 years. It is intended mainly to contrast current generational imbalances with the situation that would prevail under long-term constancy of the population.

Irrespective of the assumptions about the future fertility trend, Italy is bound to experience a sharp increase in the elderly dependency ratio (e.g., the fraction of Italians aged 65 or older), by almost 50 percent in the next 20 years (from 25 percent of total population in 1995 to 38 percent in 2015). Starting from the year 2015, the dependency ratio follows different patterns, depending on the fertility assumption (fig. 13.7). According to the baseline scenario, the dependency ratio continues to grow until the year 2045, when it reaches a peak value of 57 percent. The ratio then declines to the steady state value of 47 percent. Total population steadily decreases from 57 million individuals to 41 million in the year 2100. If the fertility rate currently observed prevails in the long run (the second scenario), the demographic outlook would be substantially bleaker: the Italian population would shrink to 20 million, 66 percent of which would be citizens aged 65 or older.[27]

13.5 Sources and Data Construction

Generational accounting requires the disaggregation of the appropriation account of the general government into a series of individual accounts. The methodology followed for the Italian case is described in detail in Franco et al. (1994). It mainly consists in distributing total revenues and outlays to the different generations alive according to age and gender, on the basis of the information obtained from two sample surveys. The first is the Bank of Italy's Sur-

25. The number of third world immigrants living in Italy in 1994 is estimated to be between 0.6 and 1 million. The annual flow is expected to be between 50,000 and 100,000. As many of them are undocumented, the overall effect on public finances is uncertain. This is the main reason for excluding immigration from the generational accounting demographic scenarios.

26. Note, however, that the sharp decline in the Swedish total fertility rate, observed in the decades preceding the eighties, was fully consistent with a stable cohort completed fertility rate around 2. On this point, see Walker (1995).

27. Obviously, such a scenario is inconsistent with a zero net migration rate. The "demographic vacuum" created by the low fertility rate would be filled by relevant immigration flows.

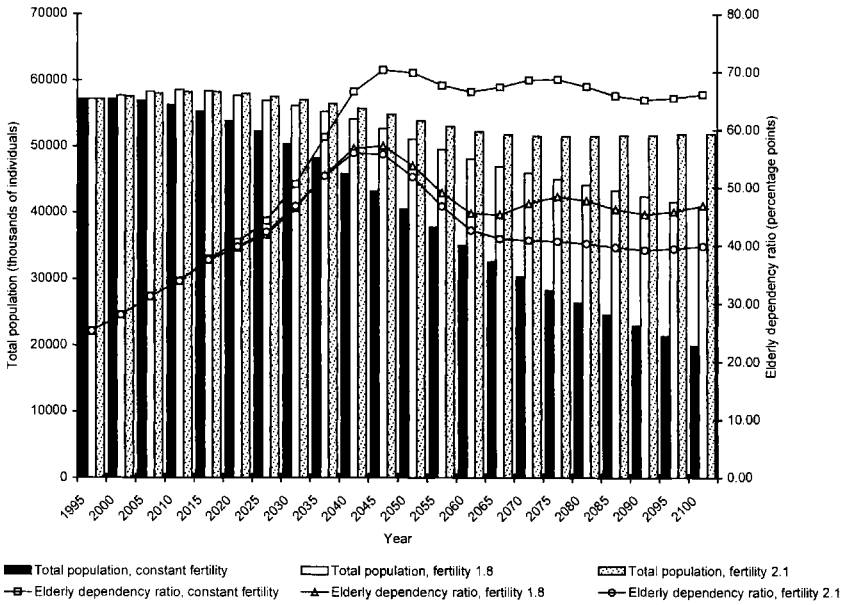

Fig. 13.7 Alternative demographic projections

vey of Household Income and Wealth; the second is the Survey of Consumer Expenditure by the Central Statistical Office (ISTAT). The receipts listed in the appropriation accounts are broken down into taxes on capital, labor, and commodities, social security contributions, and other revenues. The expenditures listed in the appropriation accounts need to be classified according to the different functions pursued. The reclassification greatly benefited from the analysis provided by Franco (1993) and Franco and Sartor (1990), which allowed a distinction between spending on health, education, pensions, household responsibility payments, and other social security transfers (such as unemployment benefits).

For the above spending and revenue items, the relative profiles of each of the 91 cohorts (from age 0 to age 90+) were obtained by benchmarking individual positions against a 40-year-old male.[28] Figure 13.8 summarizes the situation by presenting the levels of net transfers paid or received in 1995 by Italians. Citizens under age 19 receive net transfers, mainly represented by free schooling and health care. As individuals enter the labor market, their fiscal position vis-à-vis the state is reversed. The amount of net taxes paid increases with age, up to 40 years, and then decreases. The inverted V pattern mainly reflects the

28. The relative profile for each spending and revenue item is reported in Franco et al. (1994, fig. 4.1). An exception to the 40-year-old male benchmark is represented by expenditures on education, the profile for which is obtained by benchmarking individual positions against a 15-year-old male.

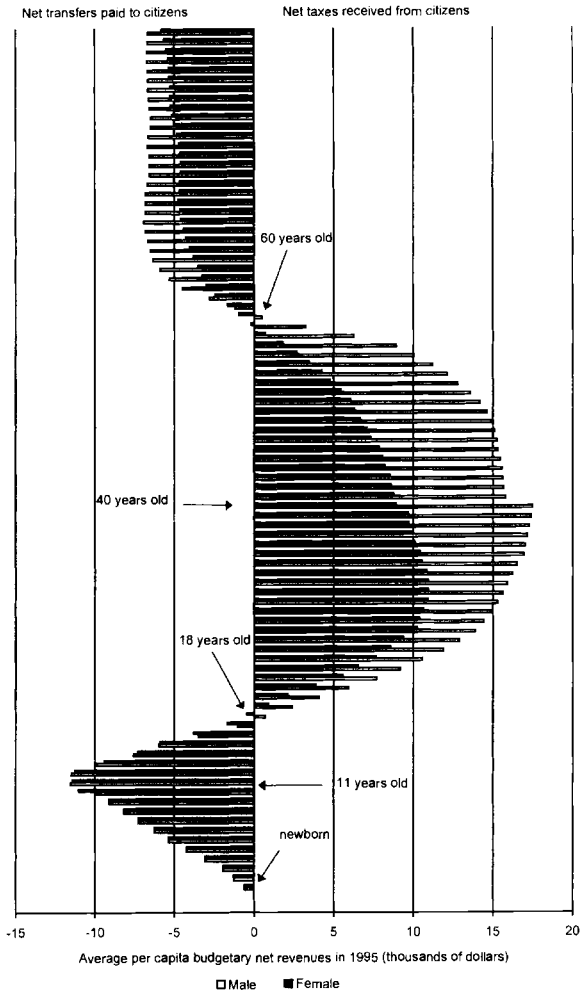

Fig. 13.8 Per capita net taxes as a function of age and gender

age structure of labor earnings and thus the amount of direct taxes and social security contributions paid. Above age 59, Italians on average become beneficiaries of net transfers. As they retire, individuals pay less in social security contributions and receive pension benefits. Moreover, the amount of health care benefits increases monotonically with age. Finally, as regards women, it can be noted that the breakeven point occurs at the same age as for men, although the absolute amounts of net taxes or transfers are smaller, due to their lower participation in the labor market.

Table 13.2 **Generational Accounts (thousands of U.S. dollars)**

Generation's Age in 1995	Total Population	Males	Females
0	64.8	89.3	39.0
5	80.3	109.8	49.3
10	112.4	147.4	75.7
15	158.9	200.9	115.0
20	186.6	235.2	136.2
25	183.7	236.5	129.3
30	155.2	209.1	100.3
35	113.5	165.5	61.0
40	63.4	108.7	18.6
45	10.7	45.5	−23.8
50	−46.8	−24.5	−68.6
55	−103.1	−98.3	−107.7
60	−142.0	−153.1	−131.8
65	−138.3	−149.9	−128.3
70	−117.5	−123.4	−112.8
75	−94.7	−96.5	−93.4
80	−72.2	−72.6	−71.9
85	−52.7	−53.0	−52.6
90	−7.4	−8.8	−6.9
Future generations	209.9	289.2	126.2
Generational imbalance	145.1	199.9	87.2
Percentage difference	223.8	223.9	223.6

Note: Economic growth assumed to be 1.5 percent; interest rate, 5 percent.

13.6 Italian Generational Accounts

Table 13.2 presents the baseline generational accounts at every fifth age assuming that the interest rate and the rate of economic growth are 5 and 1.5 percent, respectively. All amounts are in 1995 U.S. dollars. The accounts indicate the amount of net taxes that will be paid on average by an individual in the specified age group over the rest of his or her life. For example, cohorts born in 1995 will expect to pay, on average, $65,000 in net taxes, which will finance public consumption and part of the interest payments on outstanding public debt. The size of generational accounts first rises and then falls with age. This reflects the fact that young citizens are years away from their peak taxpaying periods, while older individuals, being in or near their retirement years, are receiving net transfers from the government. The breakeven age is between 45 and 50 for men and is five years earlier for women. On average, citizens aged 50 in 1995 could expect to receive $47,000 in net transfers from the government during the rest of their lives.

The decomposition of generational accounts into the present value of each of the various tax payments and transfer receipts is presented in table 13.3. In the case of 40-year-old citizens, the generational account of $63,000 represents the difference between $213,000 in the projected present value of future taxes

Table 13.3 **Structure of Generational Accounts for Total Population (thousands of U.S. dollars)**

		Payments					Receipts				
Generation's Age in 1995	Net Payment	Direct Taxes on Labor	Social Security Contributions	Indirect Taxes	Direct Taxes on Capital	Other Revenues	Pensions	Health	Other Benefits	Household Responsibility	Education
0	64.8	37.6	57.4	47.5	8.2	18.4	26.7	20.3	6.8	1.0	49.4
5	80.3	44.8	68.4	54.1	9.8	18.3	32.0	21.6	7.8	1.2	52.6
10	112.4	53.2	81.1	61.5	11.6	18.0	38.0	22.9	8.9	1.5	41.7
15	158.9	62.2	95.8	69.7	14.4	17.6	45.1	24.4	10.2	1.8	19.4
20	186.6	67.8	106.4	74.7	20.0	17.2	53.2	25.9	11.5	2.1	6.8
25	183.7	69.2	106.4	72.7	23.4	16.7	63.0	27.3	11.7	2.1	0.7
30	155.2	66.8	98.6	66.1	24.1	16.2	74.6	28.6	11.6	2.0	0.0
35	113.5	61.4	84.9	58.8	24.8	15.6	88.7	29.9	11.5	1.8	0.0
40	63.4	54.5	66.8	51.6	25.0	14.9	105.2	31.2	11.5	1.6	0.0
45	10.7	47.3	49.6	44.8	23.7	14.0	123.6	32.3	11.6	1.3	0.0
50	−46.8	38.5	32.0	38.5	22.0	13.0	144.7	33.1	11.9	1.1	0.0
55	−103.1	29.2	15.0	32.5	19.7	11.8	165.9	32.9	11.7	0.9	0.0
60	−142.0	21.3	2.4	27.6	17.7	10.6	179.5	32.0	9.2	0.8	0.0
65	−138.3	15.9	0.0	23.0	15.4	9.2	165.3	30.0	5.9	0.7	0.0
70	−117.5	12.0	0.0	19.5	11.4	7.7	136.6	26.6	4.2	0.6	0.0
75	−94.7	8.7	0.0	16.6	9.0	6.4	108.6	22.9	3.5	0.5	0.0
80	−72.2	5.6	0.0	12.6	6.9	4.9	81.4	17.8	2.6	0.3	0.0
85	−52.7	3.4	0.0	9.2	4.9	3.5	58.5	13.2	1.9	0.2	0.0
90+	−7.4	0.5	0.0	1.7	3.6	0.7	11.2	2.5	0.4	0.0	0.0

Note: Economic growth assumed to be 1.5 percent; interest rate, 5 percent.

and $150,000 in the projected present value of future transfers. The largest payment item is social security contributions ($67,000),[29] while on the receipt side the largest component is public pensions ($105,000).[30]

Under the hypothesis that budgetary policy will in the long run be consistent with financial solvency, table 13.2 also indicates the payment required of generations born from 1996 onward. In order to determine the net taxes of future generations, it is assumed that all unborn citizens will pay the same amount of taxes, adjusted for growth. The comparison between net payments due from future generations and payments expected from newborns under the eligibility rules established by current fiscal policy indicates the degree of intergenerational inequity. If the Italian government's fiscal policy were generationally balanced, the amounts future generations of Italians will pay would be equal to net taxes citizens born in 1995 will pay during their lifetimes. Table 13.2 shows that the current stance of fiscal policy is severely unbalanced against future generations. Net payments required from members of future generations will on average exceed the amount paid by cohorts born in 1995 by $145,000 (more than double the net taxes paid by newborns).

The degree of intergenerational imbalance is negatively correlated with the fertility rate and positively correlated with the difference between the interest rate and the rate of economic growth (the so-called interest-growth gap). Table 13.4 shows that the generational imbalance will be much greater if the long-run fertility rate remains constant at current levels. In this case, net taxes paid by future generations will amount to $275,000, thus increasing the generational imbalance from 224 to 325 percent. On the other hand, under the baseline demographic outlook, the generational imbalance rises from 224 to 473 percent if the interest-growth gap increases from 3.5 percentage points ($r = 5$ percent, $g = 1.5$ percent) to 5.5 percentage points ($r = 7$ percent, $g = 1.5$ percent). For the nine combinations of interest and growth rate assumptions shown in table 13.5, the percentage difference in the treatment of future Italians compared to 1995 newborns ranges from 134 to 601 percent.

13.7 Sources of Generational Imbalance and the Impact of Alternative Policies

In the previous sections it was noted that Italy is characterized by a large public debt, a very low fertility rate, and a generous public pension system. In

29. This is true for men. For women the largest payment is indirect taxes. As some women do not earn their money in the labor market but rather receive transfers from their spouses (or, in the case of widows, from social security under the survivors' pension scheme), the largest payment is linked to consumption rather than to income.

30. The data do not take into account the effects of the pension reform enacted in 1995. An estimation of the change in the present value of pension benefits for cohorts born after 1995 is currently under way (see Sartor 1998a for preliminary results). A critical assessment of the Italian pension system before the reform is proposed by Franco and Frasca (1992). For a description of the reform, see Artoni and Zanardi (1996), Canziani and Demekas (1995), Porta and Saraceno (1996), and Sartor (1998a).

Table 13.4 **Generational Imbalance under Alternative Demographic Projections: Present Value of Net Future Taxes (thousands of U.S. dollars)**

	Fertility Rate		
	Low (1.3)	Baseline (1.8)	High (2.1)
Males			
Newborns	89.3	89.3	89.3
Future generations	379.5	289.2	274.1
Percentage difference	325.0	223.9	206.9
Females			
Newborns	39.0	39.0	39.0
Future generations	165.2	126.2	119.6
Percentage difference	323.6	223.6	206.7
Total			
Newborns	64.8	64.8	64.8
Future generations	275.3	209.9	199.0
Percentage difference	324.6	223.8	206.9

Note: Base year is 1995. Economic growth assumed to be 1.5 percent; interest rate, 5 percent.

order to assess the relative importance of these elements in causing the generational imbalance, we conduct a sensitivity analysis assuming, in turn, that net public debt is zero and that the size and structure of the population remain constant.[31]

Table 13.6 illustrates the results of the counterfactual simulations; all simulations are run under the base-case interest and growth rate assumptions. Contrary to common belief, the most important source of generational imbalance is the pending demographic transition. As the number of future births shrinks, the overall primary surplus needed to keep public debt on a sustainable path must be paid by a decreasing number of citizens, whose per capita net tax payments increase. If the structure of the population remained constant, the generational imbalance would be less than a tenth of the baseline imbalance (18 instead of 224 percent). On the other hand, if it is assumed, counterfactually, that public debt were zero, the generational imbalance would be less than half of the baseline (98 instead of 224 percent). This exercise indicates that most of the imbalance in policy has nothing to do with officially labeled government debt. It illustrates the point that focusing solely on debt can be misleading in assessing a government's generational policy. Combining the two hypotheses (zero debt and constant population) produces a generational imbal-

31. No demographic change means that the number of Italians in each age-gender group in future years equals the corresponding 1995 number of Italians. Clearly, such a hypothesis is made for illustrative purposes only. A more realistic assumption would be a gradual increase in the fertility rate to the replacement level. As can be seen from the last column in table 13.4, such a scenario would still determine a generational imbalance against future generations; its size, however, is smaller than in the baseline case (207 vs. 224 percent).

Table 13.5 **Generational Imbalance under Alternative Macroeconomic Scenarios: Present Value of Net Future Taxes for Total Population (thousands of U.S. dollars)**

	Productivity Growth (%)		
Real Interest Rate (%)	1.00	1.50	2.00
3			
Newborns	99.2	110.3	118.3
Future generations	249.2	264.4	276.5
Percentage difference	151.2	139.7	133.7
5			
Newborns	54.3	64.8	76.3
Future generations	197.5	209.9	224.1
Percentage difference	263.5	223.8	193.7
7			
Newborns	24.2	30.6	38.0
Future generations	169.5	175.4	182.9
Percentage difference	600.8	473.2	381.8

Note: Base year is 1995. Exchange rate assumed to be 0.61 dollars per 1,000 Italian lire.

Table 13.6 **Sources of Generational Imbalance: Present Value of Net Future Taxes (thousands of U.S. dollars)**

	Baseline (A)	Zero Debt (B)	Constant Population (C)	B+C
Males				
Newborns	89.3	89.3	142.4	142.4
Future generations	289.2	176.5	168.0	68.9
Percentage difference	223.9	97.6	18.0	−51.6
Females				
Newborns	39.0	39.0	78.2	78.2
Future generations	126.2	77.0	92.3	37.8
Percentage difference	223.6	97.4	18.0	−51.7
Total				
Newborns	64.8	64.8	111.2	111.2
Future generations	209.9	128.1	131.2	53.8
Percentage difference	223.8	97.6	18.0	−51.6

Note: Base year is 1995. Fertility rate assumed to be 1.8; economic growth, 1.5 percent; interest rate, 5 percent.

ance against the current generation; the percentage difference between net taxes paid by future generations and those paid by cohorts born in 1995 would be −52 percent (table 13.6, last column).

An alternative way to assess the magnitude of the generational imbalance is to consider the sizes of the immediate and permanent increases in alternative tax rates or cuts in alternative spending categories required to restore genera-

Table 13.7 **Changes Needed to Restore Generational Balance (percent of baseline)**

Policy Option	Change (%)
Cut in government purchases	87.9
Cut in transfer payments (pensions)	40.0
Increase in income tax revenue	188.8
Increase in all tax revenues (including social security contributions)	61.4

Note: Economic growth assumed to be 1.5 percent; interest rate, 5 percent.

tional balance. Table 13.7 reports the results of four alternative experiments: an increase in income taxes or all taxes and social security contributions; or a cut in pensions or government consumption. As the sizes of the above budget items differ by large amounts, the percentage modifications needed to restore generational balance vary considerably. The largest difference is required if only direct taxes are increased (189 percent). The smallest is required if pensions are reduced (40 percent). The latter figure approximates the size of the cuts in future generations' pension benefits enacted by the 1995 reform (Sartor 1998a). Had the reform been applied pro rata to all living generations, the Italian generational accounts would now be very close to balance.

13.8 Conclusions

Since the eighties, stabilization of the ratio of public debt to GDP has been the main target of macroeconomic fiscal policy. According to conventional measures, the target was reached in 1995, as public debt settled at around 125 percent of GDP. Generational accounting acknowledges the great efforts made by the Italian government to put public finances on a sound footing. A measure of the progress in fiscal consolidation can be derived by calculating the generational imbalance under the assumption that the size and structure of population remain constant through time. Under the constant population hypothesis, the first set of generational accounts showed a generational imbalance of 127 percent in 1990.[32] In 1993, the imbalance was reduced to 63 percent by discretionary budgetary policy. If a constant population were a reasonable assumption, the preceding analysis would show that fiscal policy in 1995 had almost reached generational fairness (the imbalance being further reduced to 18 percent).

Conventional debt and deficit measures, however, focus on the very short run and ignore the pressures that the current demographic transition is placing on the budget. When incorporating the demographic change, the preceding analysis has shown that in 1995 the fiscal policy stance was far from balanced

32. See Franco et al. (1992, table 6), where the baseline macroeconomic scenario was the same as for this study (i.e., $g = 1.5$ percent, $r = 5$ percent).

from a generational point of view. If current tax and spending programs remain unchanged, the percentage difference in net lifetime payments between future and newborn generations is 224 percent. The size of the imbalance remains virtually constant (207 instead of 224 percent) even if the fertility rate were to reach the replacement level in the next 20 years. It is substantially smaller, however, if the pension reform enacted in 1995 is taken into account.[33]

The Italian fiscal policy debate is currently focused on European Economic and Monetary Union (EMU). The desire to join the EMU is compelling the Italian government to further restrict its fiscal policy stance in order to fulfill the Maastricht criteria of a deficit-to-GDP ratio below 3 percent and a declining debt-to-GDP ratio. The above targets have been criticized by many observers. Economists criticize the Maastricht fiscal rules for their lack of theoretical foundations.[34] Laymen criticize the criteria for the excessive restriction that would be placed on disposable incomes. While it can be agreed that the Maastricht fiscal rules are not well founded theoretically, the results derived from generational accounting show that the prescription for fiscal consolidation over and above what is needed for achieving short-term debt stabilization can offer a sounder theoretical foundation.

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33. According to the estimates of the effects of the pension reform enacted in 1995 reported by Sartor (1998a), the present value of employees' future pension benefits is reduced by 50 percent for newborns, which corresponds to a one-third reduction in overall pension benefits. Applying this percentage reduction to the estimates reported in table 13.3 would reduce the imbalance by $9,000 (and reduce the percentage difference from 223.8 to 184.8 percent).

34. The 3 percent limit on the deficit-to-GDP ratio ignores the differences among initial debt stocks of potential member countries, as well as their past inflation rates. Both factors determine current expenditures on interest payments, which are part of the deficit figure. Moreover, under a future macroeconomic scenario characterized by a common inflation rate and a very similar growth rate for all EMU countries, the 3 percent limit need not be consistent with a stable debt-to-GDP ratio. Consistency requires the debt ratio to be equal to a critical level (e.g., 75 percent if both the inflation and the growth rate are 2 percent). All countries with debt rates higher than the critical value need to to run deflationary fiscal policies in order to fulfill the 3 percent deficit limit (vice versa for countries with debt ratios lower than the critical level). On this point, see, e.g., Buiter, Corsetti, and Roubini (1993).

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