

This PDF is a selection from a published volume from the National Bureau of Economic Research

Volume Title: Social Security Programs and Retirement around the World: Working Longer

Volume Authors/Editors: Courtney C. Coile, Kevin Milligan, and David A. Wise, editors

Volume Publisher: University of Chicago Press

Volume ISBNs: 978-0-226-61929-3 (cloth); 978-0-226-61932-3 (electronic)

Volume URL:

<https://www.nber.org/books-and-chapters/social-security-programs-and-retirement-around-world-working-longer>

Conference Date:

Publication Date: December 2019

Chapter Title: Employment at Older Ages: Evidence from Italy

Chapter Author(s): Agar Brugiavini, Giacomo Pasini, Guglielmo Weber

Chapter URL:

<https://www.nber.org/books-and-chapters/social-security-programs-and-retirement-around-world-working-longer/employment-older-ages-evidence-italy>

Chapter pages in book: (p. 147 – 162)

Employment at Older Ages

Evidence from Italy

Agar Brugiavini, Giacomo Pasini, and Guglielmo Weber

6.1 Introduction

The aim of this chapter is to explore and try to explain the increases in older Italian men's (and women's) labor force participation (LFP) and employment over the past 20 years. This is a general pattern common to most developed countries around the world, and many factors may have contributed to the recent increases in LFP and employment. These include changes in social security and disability insurance incentives, improving health and longevity, increasing education, a shift toward less physically demanding jobs, and rising female LFP (combined with the desire for joint retirement among couples).

Changes in the Italian social security system were prompted by the combination of high public debt and remarkably fast population aging. Population aging in Italy poses important challenges to the public pension system for three reasons. First, Italian public debt is particularly high (over 130 percent of GDP), and this is a particular concern given the low growth experienced in recent years. Second, Italy has a low fertility rate, around 1.4 (its population is aging from below). Third, Italians' life expectancy is among the

Agar Brugiavini is professor of economics at Ca' Foscari University of Venice.

Giacomo Pasini is professor of econometrics at Ca' Foscari University of Venice and a research fellow of Network for Studies on Pensions, Aging and Retirement (Netspar).

Guglielmo Weber is professor of econometrics at the University of Padua.

This chapter is part of the National Bureau of Economic Research's International Social Security (ISS) project, which is supported by the National Institute on Aging (grant P01 AG012810). The authors are indebted to Raluca Elena Buia for excellent research assistance. We also thank the members of the other country teams in the ISS project for comments that helped shape this chapter. For acknowledgments, sources of research support, and disclosure of the authors' material financial relationships, if any, please see <https://www.nber.org/chapters/c14046.ack>.

highest in the world and is rising (its population is aging from above). Given that the public pension system is fundamentally a pay-as-you-go system, this combination calls for a substantial increase in LFP at all ages (see Brugiavini and Peracchi 2012). Part of this increase may be obtained by encouraging female LFP (which is still relatively low in Italy compared to the US, the UK, or northern Europe), and part may be achieved by drawing in foreign workers (who compensate for aging from below). But aging from above calls for longer working lives—and the very low average effective retirement ages experienced in Italy until two decades ago suggest there could be major gains to be achieved by moving in this direction.

In light of the above, it is not surprising that the public debate has focused on how to increase the labor supply of workers in the 50–65 age group both by changing the incentives to retire and by introducing tighter conditions to be eligible for a public pension. Pension reforms have been implemented over the last three decades (starting in 1992), including a radical reform that was introduced in 2011 to ensure sustainability of public debt and postponed retirement age—by a wide margin for some—without offering an easy transition out of the labor force. In particular, a relatively large number of workers who had agreed on a separation from a firm on the expectation of shortly retiring on a public pension faced the prospect of long-term unemployment.

The chapter is organized as follows: we first provide some brief background on trends in LFP in Italy (section 6.2). In section 6.3, we briefly describe the Italian pension system and the recent reforms and perform a graphical analysis of the impact of various factors on the trends in the employment rate (ER) and the LFP. Section 6.4 presents an assessment of the effects of the variation in eligibility, education, and health improvements on the ER and the LFP by means of a simple linear regression. Section 6.5 concludes.

6.2 Data Sources and Description of the Italian Labor Market

In our analysis, we use data from various sources, as the information necessary to provide a complete description of the Italian labor market and pension system for the relevant years is not available in a single database. In order to guarantee comparability with the other countries presented in this study, we use the Organisation for Economic Co-operation and Development (OECD) as the primary source. In addition, we also make use of the following sources: (1) Italian National Institute of Statistics (ISTAT) for information on the labor market and education attainments, (2) the National Institute of Social Security (INPS) for information on eligibility requirements for the various pathways to retirement, (3) the Bank of Italy Survey of Household Income and Wealth (SHIW) for detailed information on education achievements by age groups, (4) the Human Mortality Database (HMD) data for mortality rates, and (5) Eurostat as a general source.

In particular, it should be noted that as far as the information on edu-

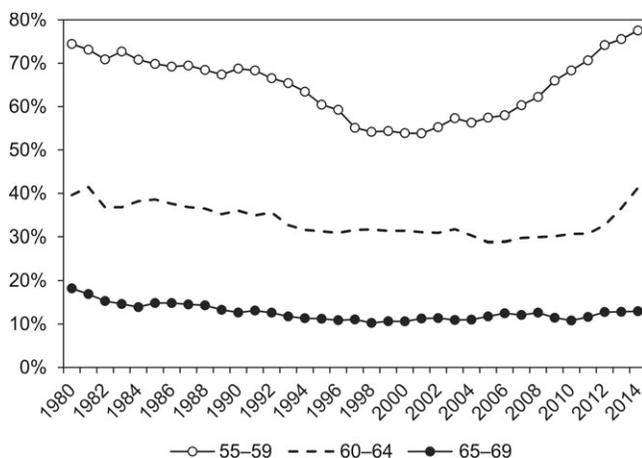


Fig. 6.1 LFP, men

Source: OECD and MARSS (ISTAT), see note a in the appendix.

cational levels is concerned, OECD and Eurostat provide the distribution of educational attainments only for the wide 55–64 age group. Hence we had to resort to the Bank of Italy SHIW in order to obtain information on educational levels presented with a finer distribution by age (see appendix to this chapter).

In order to provide a comprehensive view of the labor force trends prevailing in Italy, it is important to consider a sufficiently long time span: it is well known that many important changes took place during the 1970s and 1980s regarding the educational system, the welfare system, and the industrial structure of the country. For comparability with the other chapters of this book, we take for later years the data on LFP and ERs from the OECD statistics. However, the OECD database does not go back far enough in time—for earlier years, we gather the relevant information from the MARSS database provided by ISTAT. As both data sets are based on the Labour Force Survey (LFS), linking the two series is straightforward and does not lead to arbitrary mixtures of different sources.¹

LFP and ERs for older workers followed very similar patterns in the last 35 years, as is documented in figures 6.1 and 6.2 for men and figures 6.4 and 6.5 for women for three different age groups (55–59, 60–64, and 65–69). While LFP and ER track each other closely for each age group, there are clear gender and age differences.

Both LFP and ER series of men aged 55–59 have a U-shaped pattern: they declined almost steadily from 1980 until 1997, remained around 55 percent until the beginning of this century, and then started to rise. We see from figure 6.1 that the LFP reached the same level in 2012 as in 1980 and con-

1. Comparing the two time series for the overlapping period, the result is almost identical.

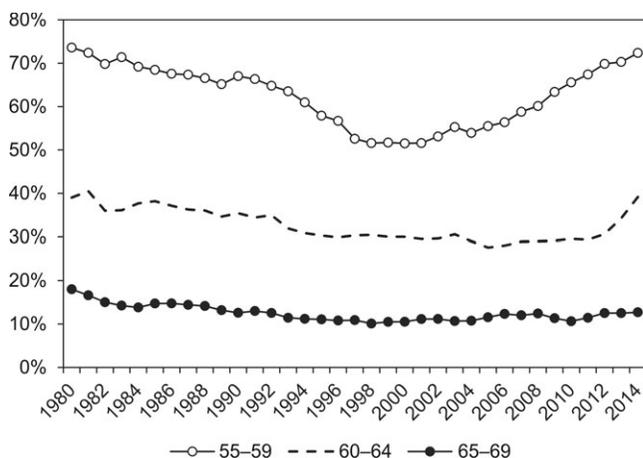


Fig. 6.2 Employment rates (ER), men

Source: OECD and MARSS (ISTAT), see note a in the appendix.

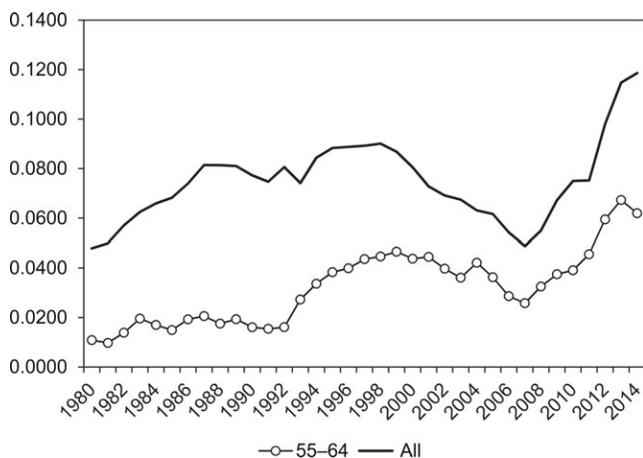


Fig. 6.3 Unemployment rates, men

Source: OECD and MARSS (ISTAT), see note d in the appendix.

tinued to increase thereafter; figure 6.2 shows that the ER also rose in recent years from its 1998 trough (52 percent) to 74 percent in 2014, but it has not yet reached its peak level of 1980 (76 percent). The discrepancy between the two series may be due to the widespread failure of older workers to find jobs in the midst of the Great Recession in the absence of specific welfare measures: until 2011, older workers who left their job automatically qualified for an early retirement pension, but this was no longer possible after the 2011 reform came into effect. This is somewhat confirmed by the trends of unemployment rates presented in figure 6.3; the unemployment rate of men

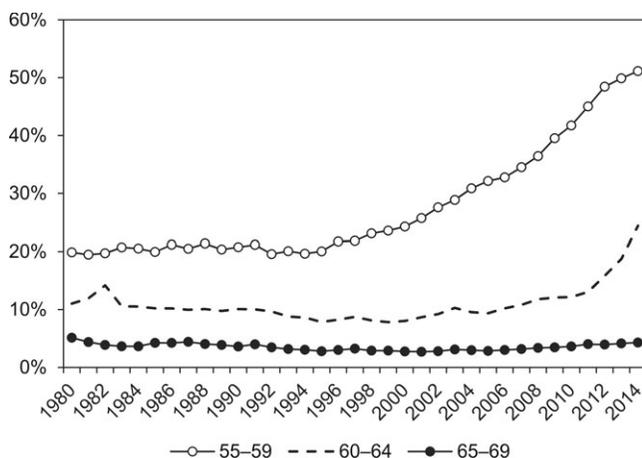


Fig. 6.4 LFP, women

Source: OECD and MARSS (ISTAT), see note a in the appendix.

in the 55–64 age group shows a steep growth in the last years of the sample period, in line with the general unemployment rate. Only in 2013, when youth unemployment was remarkably high in Italy, did the unemployment rate for older individuals exhibit a minor reversal.

Both LFP and ER series for the 60–64 age group decline slowly from values around 40 percent in 1980 to 28–29 percent in 2005. Then the trend flattens until 2011, when they start rising quickly, each increasing by 10 percentage points in three years and continuing to values comparable to the early 1980s.

The early downward trend is also noticeable for the older age group (65–69): LFP and ER were around 20 percent in 1980 and fell to 11 percent in 2011. In the next two years, they went up, albeit only by 2 percent.

The pattern of LFP and ER for women (figures 6.4 and 6.5) is markedly different and reflects the spectacular increase in labor market participation experienced by women all over the world in the second half of the 20th century, even though most of the increase takes place after the mid-1990s.

The LFP and ER of women aged 55–59 were both equal to 20 percent in 1980 and remained almost unchanged until the mid-1990s. From 1996 onward, both LFP and ER started increasing at a fast pace, reaching values above 45 percent in 2011. In the next three years, LFP and ER continued to increase, but their growth rate declined.

Regarding the 60–64 age band, only a small minority of women were involved in working activities until 2011: LFP and ER hovered around 10–12 percent from 1980 to 2011. As we saw for men, 2011 was a crucial year for women as well. Starting in 2012, the LFP and ER start to increase dramatically, reaching 24 percent in 2014. As for the oldest age group (women

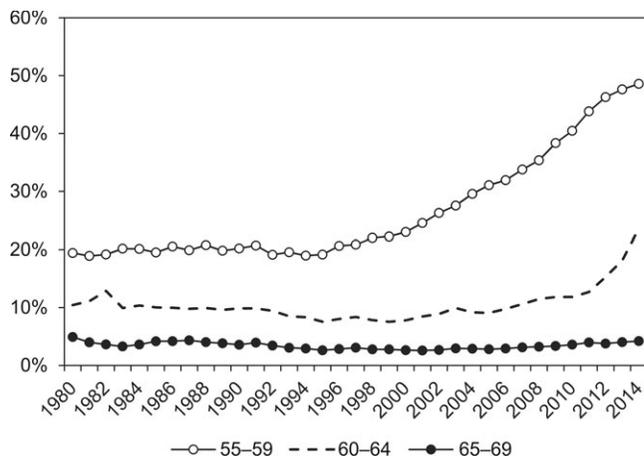


Fig. 6.5 ER, women

Source: OECD and MARSS (ISTAT), see note a in the appendix.

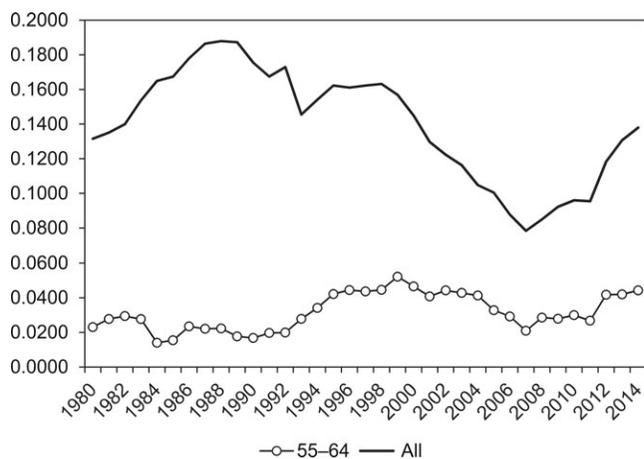


Fig. 6.6 Unemployment rates, women

Source: OECD and MARSS (ISTAT), see note a in the appendix.

aged 65–69), we see that less than 5 percent participate in the labor force throughout the period, with no relevant upward or downward trends. The unemployment rate for women aged 55–64 is relatively stable, as shown in figure 6.6.

The steady increase in education levels for both men and women, the progressive tightening of public pension eligibility criteria with the 1990s pension reforms, and the stark operation of the 2011 reform all contribute to explaining these patterns. To see how these factors interplay, we now focus on men's LFP.

6.3 Explaining the Pattern of the ER for Men: Education, Pension Reforms, and Longevity

In this section, we briefly review the basic rules of the Italian pension system that are relevant for the observed trends in the ER and the LFP rate of men in the 55–69 age group. Brugiavini and Peracchi (2016) provide a more detailed overview of the institutional details of the Italian pension system.

Italian men could retire in the public pension system through two distinct paths: an old-age pension or an early retirement (seniority) pension. Eligibility criteria for both were based on the number of years of contribution and an age limit. In the early years (until 1993), old-age pensions could be collected as early as 60 for men (55 for women), and early retirement pensions (EAR) were granted irrespective of age to retirees who had provided at least 35 years of contribution (or even less for particular groups of workers) to the system. Pensions benefits were earnings related and quite generous: a worker with a seniority of 40 years would collect a pension replacing 80 percent of his or her final salary. Also, the EAR benefits would not attract any actuarial penalty even for very young retirees in their 50s.

The reforms of the 1990s increased the retirement age and reduced benefits with the introduction of actuarially fair penalties and incentives. Two important reforms took place in 1992 and 1995, but the 1995 reform was more radical, changing both the eligibility rules and the calculation of old-age and early retirement benefits based on a notional defined-contribution (NDC) system. However, these changes were characterized by a long transitional phase and a “grandfathering” approach, protecting the older cohorts of workers, which made them effective with a considerable delay. Under the new system, the eligibility age for an old-age pension was increased gradually by one year of age every two years starting in 1994 until reaching age 65 for men and age 60 for women in 2000. The number of years of contribution required for an old-age pension was also increased gradually by one year every two years starting in 1993 until reaching 20 years of contributions in 2001. The transitional phase will be completed in 2032, when all retirees should retire under the NDC system; in the interim phase, benefits are computed as a weighted average of the pension benefit resulting from the old regime and the new regime (pro rata basis). As for the EAR, a worker could take early retirement in the year 1996 if aged 52, and if he or she had accumulated 35 years of contribution, the age limit increased in such way that in 2002, a worker would qualify at 57 years of age with 35 years of contribution. It is worth pointing out that the access to the EAR was also possible, independently of age, under the requirement in 1995 that a minimum contributive period of 35 years was satisfied. This requirement for the EAR increased over the sample period, reaching 40 years of contributions in 2008 (see tables 6.A.1 and 6.A.2 in the appendix).

In 2011, the Italian government enacted an important reform that changed the calculation of benefits in a radical way by implementing a more rapid



Fig. 6.7 Eligibility ages and employment rate for younger males aged 55–59

convergence to the NDC system. Furthermore, eligibility for an old-age pension became much tighter: in 2018, there would be no difference between men and women, and by 2050, the age requirement would become 69 years and 9 months for all types of workers. Under the new regime, which is currently in place, retirees can still access the EAR option, but a marked increase in the number of years of contributions needed for eligibility exists: 46 years for men and 45 for women by 2050. In the light of the patterns observed in our chapter, it is also relevant to point out that for those workers whose retirement benefits are computed entirely with the defined benefit method (the older cohorts), a penalty applies if the worker retires at an age younger than 62.

Figure 6.7 shows how the male EAR of individuals aged 55–59 varied over time between 1980 and 2014 (as already shown in figure 6.1) and how the old-age pension and early retirement eligibility ages evolved as a result of the various pension reforms described above.

We see that the old-age pension age gradually rose from 60 to 65, while the early retirement minimum age came into force in 1996 and quickly rose from 52 years of age (for those with at least 35 years of contributions) to 58 by 2010 and then jumped to 63 after the 2011 reform. The ER in the 55–59 age band kept falling until 1997 (in fact, many workers retired as soon as possible in the early 1990s in response to the public debate on the need to reform the pension system) but then rose steadily until 2014. It seems likely that the increase in ER over the last two decades was at least partly driven by the pension reforms. But other factors may have been at play, such as the increasingly higher proportions of high school and college graduates in that age group.

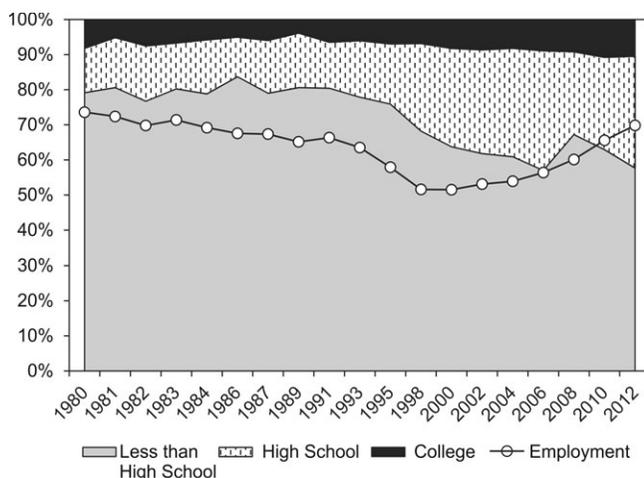


Fig. 6.8 Percentages of men with a high school or college degree and ER for men aged 55–59

Source: Eurostat and SHIW (see note d in the appendix).

Figure 6.8 displays the changing education mix of the male labor force aged 55–59. The key features to notice are the following: before 1995, 80 percent of men aged 55–59 (and even more women) had left school at 14 or younger. If their employers had paid pension contributions throughout their career, they could exit employment early (until 1993, with 35 years of contributions irrespective of age)—typically in their early 50s. The fraction of high school and college graduates in this age group started rising in the mid-1990s. By 2005, between 40 and 50 percent of men had left school at 19 or older, so they would not reach the minimum number of years of pension contributions (by then, 37) before age 57, if not later.

Those who attain a higher level of education enter the labor force at an older age and are induced by the seniority-based early retirement eligibility rules to keep working longer—and this also may contribute to explaining the rising ER of older workers in the last few years. It is also likely that higher-educated people are less keen to retire as soon as possible, as the types of jobs they have are less physically demanding and more rewarding, as we know from the effort-reward literature (Siegrist et al. 2006; Dal Bianco, Trevisan, and Weber 2015). Last but not least, the public pension system provides a higher incentive to stay at work the steeper the earnings age profile, which is typically associated with jobs performed by better-educated individuals.

The analysis of this particular age group of men suggests that the interaction of tighter early retirement eligibility rules and the increase in the fraction of high school graduates helps explain the sudden increase in LFP and ER for the 55–59 age group starting from the late 1990s. We leave a more formal investigation of the relative role played by each factor to section 6.6.

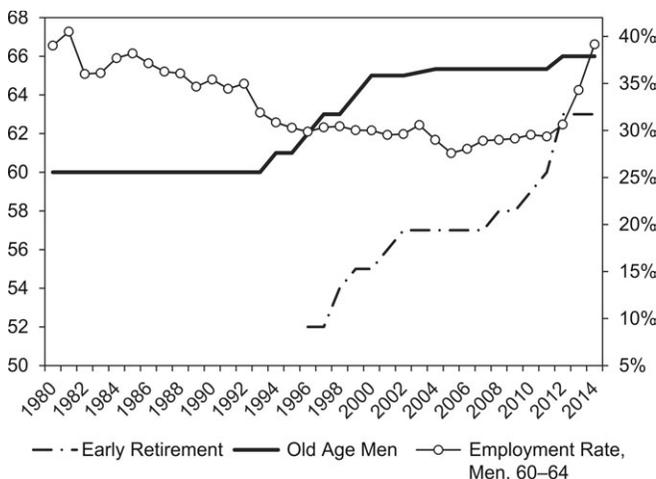


Fig. 6.9 Eligibility ages and employment rate for males aged 60–64

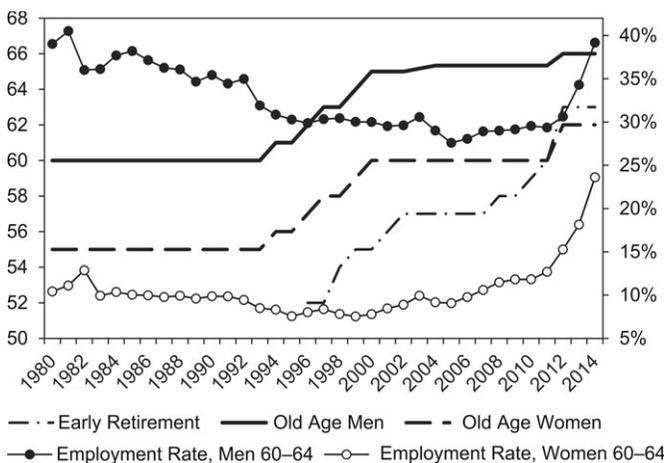


Fig. 6.10 Eligibility ages and employment rate for men and women aged 60–64

Figure 6.9 displays the ER of men for the 60–64 age group against time as well as the pension eligibility ages. We see that there was a downward trend in employment until 2005, which was followed by a slow but steady increase until 2011. As from 2012, the curve is steeply ascending: the ER increased from 30 to 40 percent in three years’ time.

Figure 6.10 adds the ER for women of the same age group to this picture: the ER was roughly 10 percent until 2005, then slowly rose to 14 percent in 2011 and suddenly jumped to 23 percent in the last three years.

The slight increase of ERs between 2005 and 2011 is likely affected by a number of factors, including the tighter eligibility rules for early retirement

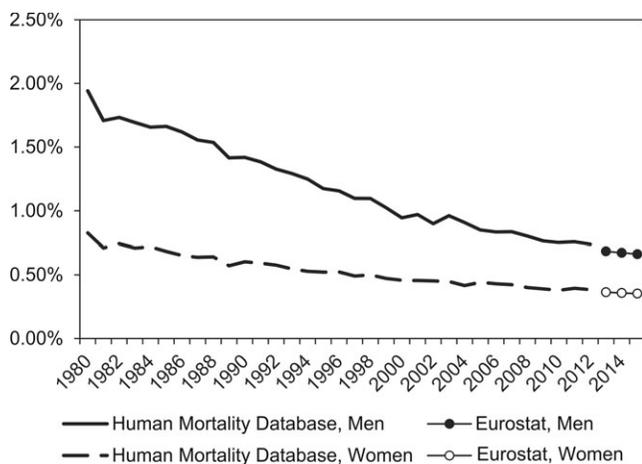


Fig. 6.11 Mortality rate at age 60, men and women

Source: 1980–2012, Human Mortality Database; 2013–2015, EUROSTAT Europop2013 population projections, main scenario (see note b in the appendix).

that came into force as a result of the implementation of the 1995 reform. The sudden increase from 2012 onward is instead most likely entirely attributable to the more radical and far-reaching 2011 reform (effective as of January 2012).

Finally, figure 6.11 displays mortality rates for Italian men and women aged 60, which falls steadily throughout the 1980–2014 period. This is reflected in rising life expectancies for all three age groups considered above. Given that longevity improvements should in principle be accompanied by better health, one may be tempted to conclude that the recent increases in LFP and ER can be attributed to better health. However, the improvements in longevity started well before 1995 and for a long time coincided with the decline in male LFP that we saw in figure 6.1. It is therefore unlikely that health improvements can explain the U-shaped time profiles in LFP and ER that we observe over the 1980–2014 period for men aged 55–59.

6.4 An Econometric Toy Model

The graphical analysis of the previous sections is, by its very nature, univariate—it considers one factor at the time. Also, each age group is treated in isolation. But these factors can be analyzed in a unified framework and age groups can be treated together if one is willing to specify a parametric model.

In this section, we propose a very simple linear model that allows the three factors at play—pension eligibility age, education, and health—to exert their joint influence on each variable of interest—the ER or the LFP indicator. Given that the dependent variable is expressed as a ratio and takes values between 0 and 1, the explanatory variables are expressed in similar terms.

Table 6.1 Estimates for men, 1994–2014

Variable	Employment rate	LFP rate
Δ eligibility	8.295** (3.085)	8.820** (3.246)
Percentage of high school and college	1.830*** (0.261)	1.942*** (0.274)
Δ life expectancy	-2.218 (2.492)	-2.315 2.622
_cons	-0.232* (0.090)	-0.253** (0.094)
Observations	63	63
R ²	0.461	0.465

We specify the following estimable equation:

$$y_{it} = a_0 + a_1 \Delta \text{elig}_t + a_2 HS_{it} + a_3 \Delta \text{life}_{it} + u_{it}, \quad i = 1 \dots 3; t = 1994 \dots 2014,$$

where the dependent variable, y_{it} , is either the ER or the LFP rate of the i -th age group in year t . In the sequel, we pool the three age groups (55–59, 60–64, and 65–69) together, but we keep males and females distinct—that is, we estimate separate equations by gender.

The explanatory variables are the following:

Δelig_t is the rate of change in the eligibility age—that is, the change in eligibility age between year $t - 1$ and t , divided by the eligibility age at time $t - 1$.

HS_{it} is the proportion of individuals with high school or more education of age group i at time t .

Δlife_{it} is the rate of change in life expectancy for age group i between year $t - 1$ and t .

Finally, u_{it} is an error term that we assume is not correlated with the explanatory variables.

We estimate the model over the second half of the sample period because eligibility age starts changing as a result of the mid-1990s pension reforms. It does not vary over the earlier part of the sample period (1980–93) when the only criterion that qualified a person for a pension was his or her job seniority (years of contributions). We introduce only one eligibility age (the old-age or normal pension age) in the model because the pension reforms raised both old-age pension and early retirement eligibility ages (and the former started rising earlier), so the two are therefore almost collinear.

Table 6.1 shows the estimates for the ER and the LFP for men. The two sets of estimates are sufficiently close that we can focus our comments on the ER equation. We estimate a significant, positive effect of eligibility age on the ER for these age groups. Given that the explanatory variable (which does not vary across groups by construction) has a sample average of 0.0069,

Table 6.2 Estimates for women, 1994–2014

Variable	Employment rate	LFP rate
Δ eligibility	1.765 (1.142)	1.89 (1.195)
Percentage of high school and college	1.296*** (0.135)	1.345*** (0.14)
Δ life expectancy	0.322 (1.239)	0.365 (1.294)
_cons	-0.141*** (0.035)	-0.146*** (0.036)
Observations	63	63
R ²	0.616	0.612

the contribution of this factor to the ER increase during the sample period is roughly 0.057—that is, 5.7 percent. The effect of higher education is also positive and highly significant, whereas the increase in life expectancy has a counter-intuitive negative sign, but the parameter estimate is not statistically significant.

Table 6.2 reports a similar set of estimates for women—we now focus on the LFP, because this is a more interesting indicator for women, but stress that the signs and significance of coefficients are roughly the same across panels. Not surprisingly, in the light of the upward trend in female LFP, the effect of the pension reforms is smaller and insignificant. The only driving force we find is the change in the educational mix: the secular increase in the proportion of women with a high school degree or additional education has a strong positive and significant effect on their LFP. Finally, the improvement in life expectancy has a positive effect, but the coefficient is insignificantly different from zero.

6.5 Conclusion

In this chapter, we have documented recent trends in employment and the LFP among the Italian “young” old (ages 55–69). We have seen that LFP is particularly low and stable among the 65–69 age group but that major changes occurred over time for the younger groups.

A striking feature of the Italian labor market is the low but fast-rising female LFP. This is partly attributable to increased education and may help explain past and future changes in male participation and employment at older ages if men take into account the LFP of their spouses. This is an interesting topic for future research but is beyond the scope of our analysis.

Male LFP between ages 55–59 has changed dramatically over the years: after a steady fall in the 1980s and early 1990s, there was an impressive increase, leading to higher participation in very recent years compared to the early 1980s. This generates a U-shaped time profile of the ER for this age group. The 1990s were also the years when major public pension reforms

were introduced in Italy. But other potential determinants of the LFP decisions were also changing over time: mortality was decreasing and the proportion of highly educated individuals was rising.

The ER of the older age group (60–64) was much more stable until very recently, when the more radical pension reform of 2011 pushed men to stay in the labor force until age 62 at least.

We have estimated a simple econometric model to assess the relative importance of all these factors on LFP and employment. We have found that the rise in both LFP and ER among men after 1995 is largely explained by two main factors: the increase in the eligibility age for public pension and the improved educational mix of the workforce. Improved health (approximated by decreased mortality) does not appear to have played a role, even though more specific health indicators may be needed before a firm conclusion can be drawn on this.

Appendix

Table 6.A.1 Eligibility requirements for early retirement

Year	Age + years of contribution	Private employee	
		Years of contributions only	
		Men	Women
1980	Any age + 35	35	35
...
1994	Any age + 35	35	35
1995	Any age + 35	35	35
1996	52+35	36	36
1997	52+35	36	36
1998	54+35	36	36
1999	55+35	37	37
2000	55+35	37	37
2001	56+35	37	37
2002	57+35	37	37
2003	57+35	37	37
2004	57+35	38	38
2005	57+35	38	38
2006	57+35	39	39
2007	57+35	39	39
2008	58+35	40	40
2009	58+35	40	40
2010	59+36	40	40
2011	60+36	40	40
2012	63+20	42 years and 1 month	41 years and 1 month
2013	63+20	42 years and 5 months	41 years and 5 month
2014	63+20	42 years and 6 months	41 years and 6 month

Table 6.A.2 Eligibility requirements for old-age retirement

Year	Defined benefit			Notionally defined contribution		
	Men	Women	Years of contribution	Men	Women	Years of contribution
1980	60	55	15	—	—	—
...	—	—	—
1992	60	55	15	—	—	—
1993	60	55	16	—	—	—
1994	61	56	16	—	—	—
1995	61	56	17	—	—	—
1996	62	57	17	57	57	5
1997	63	58	18	57	57	5
1998	63	58	18	57	57	5
1999	64	59	19	57	57	5
2000	65	60	19	57	57	5
2001	65	60	20	57	57	5
2002	65	60	20	57	57	5
2003	65	60	20	57	57	5
2004	65	60	20	57	57	5
2005	65	60	20	57	57	5
2006	65	60	20	57	57	5
2007	65	60	20	57	57	5
2008	65	60	20	65	60	5
2009	65	60	20	65	60	5
2010	65	60	20	65	60	5
2011	65	60	20	65	60	5
2012	66	62	20	66	62	20
2013	66	62	20	66	62	20
2014	66	63	20	66	63	20

Legend for the Italian Data

a. The series LFP_5559_M, LFP_5559_W, EMP_5559_M, and EMP_5559_W; LFP_6569_M, LFP_6569_W, EMP_6569_M, and EMP_6569_W; LFP_6064_M, LFP_6064_W, EMP_6064_M, and EMP_6064_W are drawn from the OECD data. They start in the year 1983 and are not available in the previous years; data for 1980–82 come from MARSS data (ISTAT).

b. The series MORT_60_M and MORT_60_W come from the HMD up to 2009; for the years 2010–13, the source is Eurostat. Information for 2014 is missing for both sources, and we produced an interpolation based on the available data. Also, life expectancy by age groups used in the regression comes from this source.

c. The source for the data in HS_5564_M, HS_5564_W, and COLL_55_64 is Eurostat starting with 1992. From 1989 to 1992, data are from SHIW weighted series with missing years when no survey took place. Before 1986, data are from historical archive SHIW surveys, and only age class is given.

Information is weighted. The SHIW survey started in 1977 and collects information on the income, savings, economic, and financial behavior of Italian households. Since 1989, the survey has been conducted every two years. In order to obtain complete series for the distribution of educational levels by age groups, we imputed the missing intermediate values by linear interpolation.

d. UE_55_64_M, and UE_55_64_W, or the unemployment rates for the men and women in the age group 55–64, come from OECD starting with 1993. Although they were available from the OECD data, we substituted the data between 1980 and 1992 with MARSS data (Italian LFS) due to unexplained inconsistencies in OECD data between the series before 1992 and after 1993 (which lead to a significant peak in the data in 1993). MARSS data do not present this pattern, have the same source as OECD data (the Italian LFS), and are very similar to the OECD data for the years after 1993.

References

- Brugiavini, A., G. Pasini, and G. Weber. 2017. "Health Capacity to Work at Older Ages: Evidence from Italy." In *Social Security Programs and Retirement around the World: The Capacity to Work at Older Ages*, edited by David A. Wise, 181–218. Chicago: University of Chicago Press.
- Brugiavini, A., and F. Peracchi. 2012. "Health Status, Welfare Programs Participation and Labour Force Activity in Italy." In *Social Security Programs and Retirement around the World: Historical Trends in Mortality and Health, Employment, and Disability Insurance Participation and Reforms*, edited by David A. Wise, 175–215. Chicago: University of Chicago Press.
- . 2016. "Health Status, Disability Insurance, and Incentives to Exit the Labor Force in Italy: Evidence from SHARE." In *Social Security Programs and Retirement around the World: Disability Insurance Programs and Retirement*, edited by David A. Wise, 411–54. Chicago: University of Chicago Press.
- Dal Bianco Chiara, Elisabetta Trevisan, and Guglielmo Weber. 2015. "‘I Want to Break Free’: The Role of Working Conditions on Retirement Expectations and Decisions." *European Journal of Ageing* 12:17–28.
- Siegrist, Johannes, Morten Wahrendorf, Olaf von dem Knesebeck, Hendrik Jürges, and Axel Börsch-Supan. 2006. "Quality of Work, Well-Being, and Intended Early Retirement of Older Employees: Baseline Results from the SHARE Study." *European Journal of Public Health* 17 (1): 162–68.