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From work to retirement: a tale of bumpy routes[1]

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Introduction

The progressive ageing of population in Europe heralds serious consequences in the years to come. Projections on the macroeconomic evolution in the next decades are pessimistic on the effects of population ageing: public health and social security expenditures will soar, and a severe shortage of workforce is expected[4]. In Italy, however, ageing is already a big issue today. In addition to the trends of public expenditure and future workforce shortage, common to all EU member states, Italy will soon face the retirement of 2 million self-employed (nearly one half of all the self-employed are – as of today – over 55), still active in traditional sectors like trades, crafts and agriculture, highly vulnerable to competition and exposed to old age problems, due to the insufficient coverage of the safety nets compared to those available to dependent workers.

There are, however, reasons for concern also for those who are on regular payroll. According to a common stereotype, end-of-career routes are thought to be "linear", with smooth transitions from lifetime jobs to retirement. In this paper we challenge this view. The "linear" paths are a prerogative of a little over one half of today's employees, let alone those of tomorrow. The remaining half are workers whose end-of-career is marked by irregular patterns of labour market activity that seriously hinder their current earnings and pensions.

Explanations and policy implication will be addressed at the end of this paper. Our main aim is twofold: (i) supplement the debate on ageing on the basis of explorations of a longitudinal dataset of individual work histories from work to retirement, (ii) provide an account of critical issues about elders' working careers in Italy.

The paper is structured as follows. In section 1 we set up some background issues about ageing in Italy. In section 2 we compare the main stylized facts on the transition from work to retirement in Italy and Europe. The same are then reconsidered in the light of two rich longitudinal datasets of administrative source, covering the working careers of Italians workers between 1985 and 1999. Section 3 presents some evidence about elders' mobility in the Italian labour market. In section 4 we propose a classification of the typical paths towards retirement, analyze them along individual and job characteristics, and estimate their impact on the workers' retirement earnings. Section 5 concludes with a review of policy implications.

Ageing in Italy

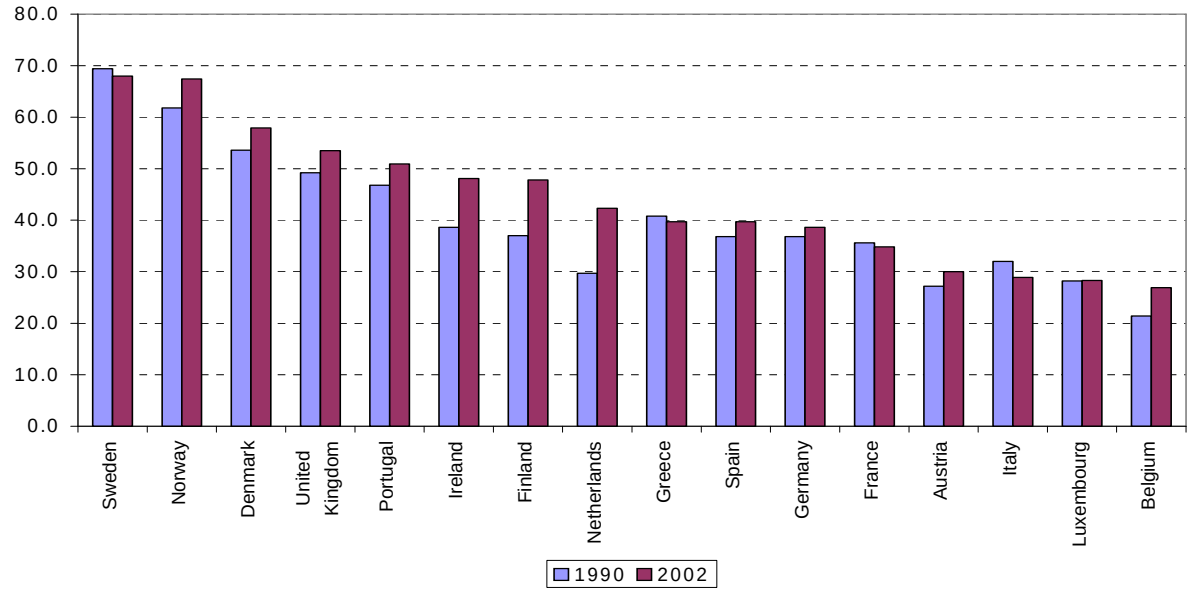
The process of population ageing currently underway in Italy is more pronounced than in most other European countries. After the baby boom of the 60s and early 70s, the total fertility rate has declined steeply: it fell below the replacement rate of 2.1 at the beginning of the 80s, reaching 1.24 in 2000. At the same time, life expectancy is among the highest. Even though a slight recovery in fertility rates is expected in the coming years, the transition process to the new demographic regime will have a deep impact on the age structure[5]. In the next two decades, the baby boom generations will reach retirement age, and will be replaced by new cohorts roughly half in size. By 2050, more than one in three Italians will be over the age of 65.

An additional source of concern in Italy is the participation rates of the elders. Figure 1 compares participation for people aged 55-64 in a selection of EU countries. Italy ranks 14th out of 16, and contrary to most countries participation has decreased throughout the Nineties.

[4] On the budgetary challenges posed by ageing populations see the reports by the European Commission's Economic Policy Committee (for instance European Commission - EPC, 2001 and 2003). On issues more related to the labour market see Oecd (2004) and ILO (2000).

[5] Here and in what follows we refer to the population projections produced by the Italian Statistical Office (Istat), "central" scenario. See http://demo.istat.it/index.html.

Figure 1. Participation rates in 1990 and 2002, people aged 55-64, various EU countries.



Source: Eurostat LFS 2002.

Ageing and low participation of the elders, taken together, imply future scenarios in which the economic dependency rate – the ratio of people out of the labour force to those who participate – can become hardly sustainable. Oecd [2004] applied the participation rates measured in 2000 by gender and five-year age groups to the best available demographic projections, and predicted for Italy an economic dependency rate going from about 100% in 2000, to a record high of about 130% by 2050 (Oecd average from 60% to 75%).

An impressive majority of Italian workers >55 are self-employed (46%, see Table 1. The EU-25 average is only 13%). About 25% are public sector employees[6], and the remaining 29% work in the private sector. Of those of age below 55, over one half are employed in the private sector, the rest in roughly equal shares in the public sector and in self-employment. All these shares remain about constant in the decade 1993-2003.

Table 1. Structure of employment by age, 1993-2003.

		dependent in the public sector	dependent in the private sector	self employed	total
1993	≥ 55	25.2	29.0	45.9	4.241.789
	< 55	26.1	50.9	23.0	20.174.158
2003	≥ 55	24.7	29.2	46.0	4.802.060
	< 55	22.0	54.6	23.6	21.860.576

Source: Our elaborations on Istat Labour Force Sourvey, 1993 and 2003.

Table 2. Distribution of private dependent employment by sector, 2003.

	< 55	≥ 55
Agriculture, hunting and forestry	6.0	12.7
Fishing	0.2	0.3
Mining and quarrying	0.4	0.2
Manufacturing	28.6	19.9
Electricity, gas and water supply	1.0	0.9

[6] Divisions 75, 80 and 85 of NACE rev. 1.1. Private businesses in Italy covers just 20% of total employment in the Education and Health sectors, so the divisions chosen roughly corresponds to public employment.

Construction	10.8	12.7
Wholesale and retail trade	20.2	23.3
Hotels and restaurants	5.6	5.6
Transport, storage and communications	6.8	6.3
Finance, insurance, real estate and business services	4.0	3.1
Real estate, renting and business activities	10.0	8.5
Other community, social and personal service activities	5.3	5.2
Activities of households	1.1	1.3
Extra-territorial organizations and bodies	0.1	0.1

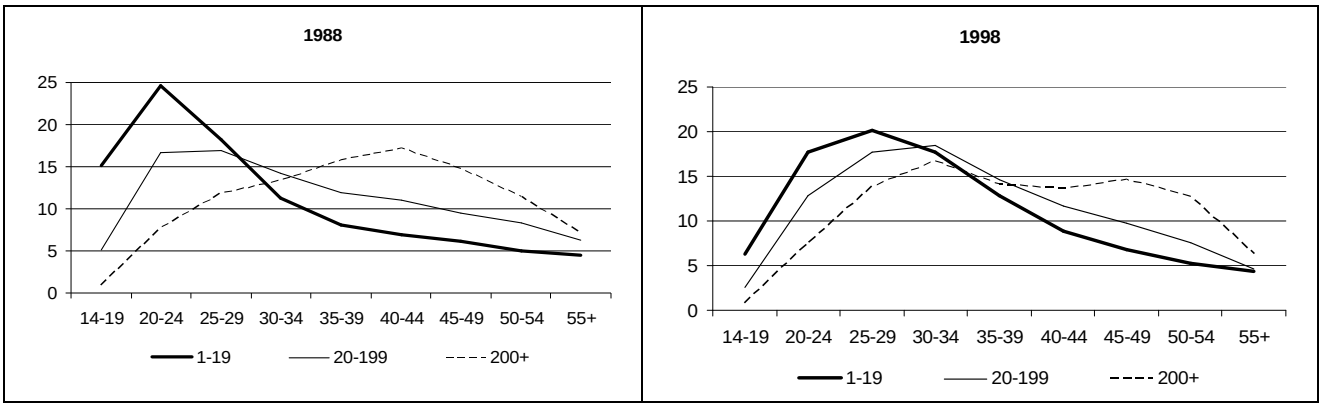
Source: Our elaborations on Istat Labour Force Survey, 2003.

Within the private sector, elderly employees are concentrated in traditional activities (Table 2). The share working in Agriculture is double with respect to the under 55. The share is higher also in Construction and in Trades, while it is lower elsewhere.

Aging affects companies in different ways: young workers are heavily concentrated in the small-firm sector, while mature labour force is concentrated in the large firms. There is a physiological explanation of this: annual entry-exit rates for small firms are over 10%, and therefore life expectancy of such firms is shorter than that of large ones. For any person entering a small firm there is a high probability that he/she will be forced out of the job after a few years. The risk may be acceptable to a young person, much less so to a mature one, who may have strong incentives to hold to his/her post as long as possible, especially if employed in a large firm.

The shift in the age distribution of employment is remarkable in all firm sizes: between 1988 and 1998, the mode of the distribution among smaller firms shifts markedly from the 20-24 age-group to the 25-29 age-group; among larger firms, from the 40-44 age-group to the 45-49 age-group (Figure 2).

Figure 2. Workforce age distribution by firm size, 1988 and 1998.



Source: Our elaborations on Whip data, 1988 and 1998.

Which are the driving forces behind this evolution? While population ageing is a direct consequence of demography, workforce ageing does not depend *only* on demographics. Throughout the Eighties young cohorts entered the Italian labor market at the expense of elder cohorts that were displaced out of the labour force (the so called "young-in, old-out" process[7]). Since the early Nineties, however, the number of new young entrants in the labor market has been steadily decreasing, and adult workers – the cohorts of the baby boom – have been ageing on the workplace. Events of the last twenty years have indeed contributed to reduce the number of workers over 60: voluntary and/or early retirements (generously helped at the expense of the National Social

[7] B. Contini and F. Rapiti [1994 and 1999].

Security) were numerous, and collective layoffs from large companies, aimed at perfectly able workers in their fifties, have been massive. They have not avoided, however, the rapid ageing of a large share of working population. Today in many of the large Italian companies the modal age of the workforce is around 45-48 years, a well known hump which will create huge problems to productive capacity in the next decade.

Two arguments deserve attention:

(i) in spite of the shrinkage of the post-baby boom cohorts and the increasing schooling attendance, the labor supply of young workers would have allowed a much larger generational replacement, which did not, however, take place.

(ii) the labor cost of retaining elderly workers on the job was high and increasing compared to hiring young people via work-and-training programs and other *ad hoc* instruments;

The first argument is the supply-side of the story: from the Eighties onwards the shrinkage of younger cohorts has reached impressive proportions (the cohort of 15-year-olds numbered 972,000 in 1980, and only 638,000 in 1996), in parallel with a physiologically robust increase in secondary and higher education. As a consequence participation rates in the age-group 15-24 years dropped from 43.5% in the 1980's and early Nineties to 35.3% in 2003, much lower than the EU average. But participation itself was largely discouraged from the demand side.

The second argument is demand related. Wage differentials between young and old have widened since the early Nineties as everywhere in Europe (higher returns to experience and human capital), and also as a consequence of programs aimed at enhancing labor market entry of young people. In 1985 gross pay of a youth <25 was about 71% that of a colleague >45; in 1996 the relative pay was down to 60%. And this underestimates the labor cost differential as it fails to account for the generous reduction of social security contributions and the additional built-in flexibility of all the new programs (Contini [2002]). Notice that the new contractual forms provided little incentives to the accumulation of human capital and company loyalty of the young workers. Very high hiring and firing rates were associated to the new entries. It is reasonable to hypothesize – several face-to-face interviews with personnel managers strongly suggest so, although no statistical evidence is at hand – that since the Nineties firms may have opted for a reduction of hires of young entries and the retention of skilled and reliable older personnel in spite of the additional costs, thus delaying generational replacement, and enhancing the aging-on-the-job of their work force.

Transitions work-pension in EU

The aim of this section is to compare some stylized facts on the transition from dependent work to retirement in Italy and Europe, as they emerge from the European Community Household Panel (ECHP), waves 1-7.

In the Europanel questionnaire there are no explicit questions on the timing of retirement, nor is the retired condition well established. The individuals self declare their current status, one of which is "retired", and fill in questions on their current position which Eurostat uses to map the self-declaration into the ILO definition. ILO, however, does not distinguish those who are retired from other forms of inactivity[8]. We identify the transition from work to retirement on the basis of the following conditions at year *t*:

[8] Actually, the definition of "retired" is not always agreed upon. Statistics Canada, after admitting that "the concept of retirement is ambiguous", propose to define as retired "a person who is aged 55 and over, is not in the labour force and receives 50% or more of his or her total income from retirement-like sources". See http://www.statcan.ca/english/concepts/definitions/retirement.htm. This definition does not fit with our purposes, since

- The individual has had previous work experience;
- The individual declares himself retired in year (*t*-1) (retrospective question);
- The individual declares himself retired at the time of the interview (*t*), and the ILO status is inactive;
- At the time of the interview, the individual receives a retirement income.

Table 2.1 is computed on a sub-sample of 7 countries (Belgium, Denmark, France, Germany, Italy, United Kingdom and Spain). All individuals aged 50-67 (in total 20,605) were selected from the first wave of Europanel (1994) and followed in the six waves. Table 2 displays the distribution of the individuals by working status in 1999, once we distinguish the inactive into retired and other inactive according to the criteria specified above. The percentage of women still at work is low in Belgium, Italy and Spain; the share of working elders particularly high in Denmark. The majority of those who are out of the labour force receive a direct pension, but also in this case cross-country differences are sizeable. The share of women without a direct pension is highest in Belgium, Italy and Spain.

Table 2.1. Distribution of individuals age 50-67 by working status, 1999, by country and sex (percent values).

		Employed	*Unemployed*	*Discouraged*	*Other inactive*	*Retired*	*Observations*
Belgium	*f*	9.4	0.6	0.2	35.6	54.3	862
	m	26.1	0.4	0.2	10.5	62.7	682
Denmark	*f*	33.3	1.2	1.0	20.6	44.0	627
	m	42.8	1.3	0.8	7.4	47.7	555
France	*f*	13.6	0.9	0.1	27.1	58.4	1453
	m	21.6	0.7	0.1	9.6	68.1	1261
Germany[1]	*f*	20.6	1.4	–	24.9	52.9	1779
	m	33.5	1.5	–	14.4	50.3	1539
Italy	*f*	9.6	0.7	0.4	35.9	53.4	2557
	m	25.5	1.6	0.5	9.5	62.9	2256
Spain	*f*	10.1	1.2	0.2	56.4	32.1	2461
	m	29.4	2.2	0.5	15.1	52.8	1975
U.K.[2]	*f*	20.0	–	–	16.9	63.1	1464
	m	30.7	–	–	11.7	57.6	1134

Source: *European Community Household Panel*, wave 6.
Notes: 1) Discouraged status not available, included in the inactive status 2) Unemployed and discouraged statuses not available, included in the inactive status.

The sample allows to observe the transitions towards retirement. In order to distinguish a "linear" transition – a long working spell directly followed by retirement, two variables can be used: (i) the *calendar activity*, which is lined up to reconstruct month by month the individual's position; thus we observe whether the transition takes place directly from a working position or there are intervening spells of unemployment or inactivity; (ii) the retrospective question on the timing of their current job.

Table 2.2 displays only the individuals for whom we observe both one or more spells in dependent work, and the transition to retirement. In order to observe a working career of at least three years, we considered only those retired after 1996. Italy stands out with the highest frequency of direct transitions from work to retirement (almost 80%), largely due, however, to the high share

it rules out early retirements – in Italy retirements before 55, particularly for women, have been very common – and for individuals who happen to have non-labour earnings greater than the pension benefit.

of employment-to-retirement transitions of public sector workers. In the private sector Italy is still high, but closer to other countries.

Long working relationships before retirement (> 10 years) are found in all the observed countries except the UK (table 2.3). V-shaped distributions prevail everywhere except France.

Table 2.2. Direct transitions from employment to retirement, 1996-1999, by country and gender.

		Direct transitions over total transitions		
		All	**Only public**	**Only private**
Denmark	*f*	0.53	0.76	0.43
	m	0.80	0.96	0.76
France	*f*	0.55	0.67	0.49
	m	0.54	0.66	0.53
Germany	*f*	0.53	0.74	0.49
	m	0.49	0.63	0.48
Italy	*f*	0.78	0.93	0.64
	m	0.79	0.91	0.73
Spain	*f*	0.56	0.92	0.44
	m	0.50	0.71	0.45
U.K.	*f*	0.69	0.61	0.72
	m	0.75	0.69	0.80

Source: *European Community Household Panel*, waves 1-6.
Note: Belgium excluded because of insufficient sample size.

Table 2.3. Distribution of retirement based on the length in years of the last working relationship, 1996-1999, by country and sex.

	0-5	**6-9**	**>10**	***Observations***
			all	
Denmark	11.0	7.3	81.8	110
France	3.8	6.6	89.6	183
Germany	16.9	6.8	76.2	336
Italy	6.6	0.7	92.7	318
Spain	15.5	3.4	81.2	149
U.K.	25.4	16.3	58.4	166
			only private sector	
Denmark	7.6	6.1	86.3	66
France	6.3	11.3	82.5	97
Germany	17.3	7.1	75.6	254
Italy	8.7	1.0	90.3	195
Spain	19.8	4.7	75.5	106
U.K.	25.0	16.7	58.3	132

Source: European Community Household Panel, waves 1-6.
Note: Belgium excluded because of insufficient sample size.

Mobility of the elders

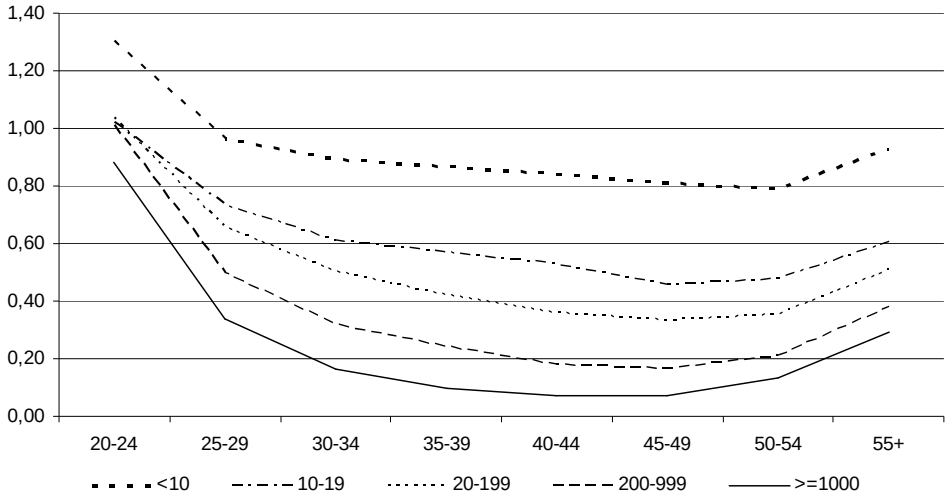
The Europanel, like most survey-based data, is not well suited track mobility in one's job history, the problem being that most of the short employment spells remain unobserved. Administrative

based data are much more informative – in that they follow working careers on a monthly or even weekly basis – and point at substantial heterogeneity across individuals, geographical areas and industries (see Haltiwanger 1997; Davis and Haltiwanger 1999; Contini 2002; Contini and Trivellato 2005). Italian data are drawn from the Work Histories Italian Panel (WHIP), an administrative based longitudinal dataset that covers all private sector employment in Italy, 1985-2001 [9].

Mobility indicators strongly depend on worker age and firm size.Young workers are, unsurprisingly, the most mobile, the search for a "good job" translating into many flows in and out of jobs. Worker flows are much higher in small firms for a variety of reasons: high entry and exit of small firms from the market place, limited internal mobility, few firing constraints due to looser institutional constraints and to the limited presence of unions.

A rough, yet widely used synthetic indicator of mobility, is the Gross Worker Turnover (GWT, the ratio between engagements plus separations into/from a job, over the total number of workers). Figure 3 displays GWT as a function of worker age and firm size. Mobility as a function of age is U-shaped in all firm size classes. In small firms it is notably upward shifted compared to the large companies, and has a flatter shape: thus the "small firm" effect dominates the age factor in determining mobility. Notice, for example, that individuals 50+ working in small firms (10-19 employees) have a 50% overall turnover, while individuals aged 25-29 employed in large firms (1000+) slightly exceed 30%.

Figure 3. GWT by worker age and firm size (late 90s)



Source: Leombruni and Quaranta (2005).

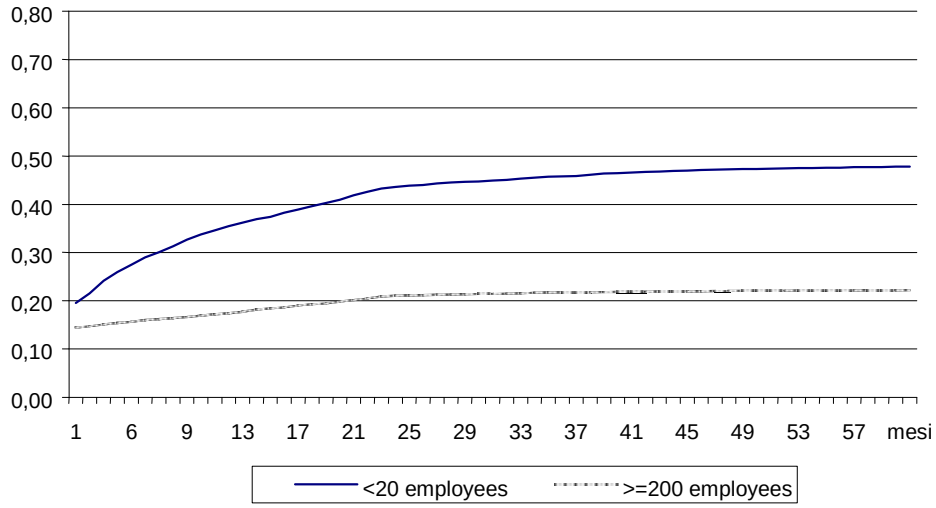
If the question is "do older workers have stable careers?", the answer is twofold: in large firms they do, while in small firms they appear quite mobile. Should this be a cause for concern? High turnover is not necessarily bad news, provided that workers who get laid off can soon find a new job. Consider the time span required for re-entry into dependent employment following a separation. If the re-entry time is sufficiently long, it is likely to reflect a period of social hardship – usually, although not necessarily unemployment – for the people involved.[10]

[9] For a description of the database see http://www.laboratoriorevelli.it/whip.

[10] The WHIP database does not provide complete information on spells of non-employment. There are three possibilities, in addition to unemployment without benefits (by far the most likely) – unemployment with benefits being observable - (i) periods spent out of the labour force; (ii) temporary moves into self-employment; (iii) temporary moves in the public sector. Moves into self-employment occur in less than 4% of all separations (see Contini and Fornero, 2002); temporary moves in the public sector are non-existent; temporary exit from the labor force at the end of a work career is plausible, but unlikely.

Figure 4 shows the cumulated frequency of re-entry times for workers over 50 in large and small firms (over 200 and under 20 employees respectively). For individuals separated from large firms, the frequency of re-entry within 3 years is about 22%, two thirds of the time occurring as direct job-to-job switches (in less than 1 month): a hint at the fact that for such people re-entry is indeed a very rare event. In the small-firm sector things are quite different: re-entry occurs in almost 50% of cases within 3 years, with direct job-to-job switches taking place at least 20% of the times.

Figure 4. Cumulated frequency of re-entry times for employees over 50 by firm size, after a separation occurred in 1986-1992.



Source: Our calculations based on WHIP data

Paths to retirement

In this section we challenge the prevailing view according to which the transition from work to retirement is often smooth and painless. The previous paragraph has already indicated that elders employed in small firms are quite mobile (recall that in Italy employment in the small-firm sector is much higher than the EU average, and that the share of over 50's working in small firms hovers around 30% in the late Nineties).

Transitions to retirement are best observed in a different INPS (*Istituto Nazionale della Previdenza Sociale*, the National Social Security Administration) datasource. The "Estratti Conto" (EC) archive summarizes the accrued contributions and benefits received by workers in the Italian private sector. In the following, we will presents statistics drawn from a random sample of 84.000 individuals observed in the EC archive between 1985 and 1997 (the sampling ratio is about 1:365). The following spells are identifiable[11]:

1) Dependent employment in private firms;
2) Self employment as artisans or in the trade sector;
3) Self employment in agriculture;
4) Wage compensation fund (CIG, Cassa Integrazione Guadagni);
5) Unemployment and "mobility lists" with relative benefits;
6) Pension;
7) Contributions to other funds (domestic help, voluntary deposits, INPS personnel, etc.).

[11] The only workers who fall out of INPS scope are those employed in the public sector, and the self employed enrolled in specific professional registers (journalists, lawyers, accountants, work consultants and few others).

We coded these episodes with a character, using "U" ("u") to represent long (short) periods in which the individual falls out of the 7 categories above (see table 4).

Short periods of absence from the EC archive (the "u") can by and large be identified as unemployment spells without benefits, for the reasons given in previous section. Longer time spells (the "U") may correspond both to long unemployment spells (w/o benefits), or to periods of inactivity. The latter occurs if a person decides to become inactive without being eligible for a seniority pension, and waits until s/he reaches the old age requirement. We cannot distinguish between the two cases, but the latter is not infrequent for Italian women, who, having opted for household chores, withdraw at early age from the labour market and start to receive the old age pension at 55.

The episodes identified by "M", in contrast, are periods of unemployment *with* benefits. They comprise both ordinary unemployment benefits, and the benefits granted to people included in the so called mobility lists (*liste di mobilità*). The latter is a mixed scheme for individuals laid off from firms in "structural crisis", that grants a rebate to firms who re-employ workers included in the list, and an unemployment benefit to the workers themselves. In some cases, the benefit is granted until the individual becomes eligible for retirement pension – the so called "long mobility" (*mobilità lunga*).

Table 4. Career Path Codes

(i) Codes for Periods Considered

D	Dependent work
S	Self employment as artisans or in the trade sector
M	Unemployment benefits and "mobility lists" benefits
C	Wage compensation fund
A	Self employment in agriculture
P	Pension
O	Other funds
u	Unemployed for 3 – 12 months (w/o benefits)
U	Unemployed for more than 12 months (w/o benefits)

(ii) The most common career paths

Direct transitions from job to pension:

DP	Dependent work of ≥7 years duration --> pension
*DP	Anything --> dep. work --> pension

Transitions from unemployment with benefits:

*DMP	Anything --> dep. work--> un. with benefits --> pension

Transitions from unemployment without benefits:

*DuP	Anything --> dep. work --> short un. w/o benefits --> pension
*DUP	Anything --> dep. work --> long un. w/o benefits --> pension
*DMuP	Anything --> dep. work --> un. with benefits --> short un. w/o benefits --> pension
*DMUP	Anything --> dep. work --> un. with benefits --> long un. w/o benefits --> pension

A sequence of codes of observed episodes depicts a representation of the workers' career during the years covered by the sample. For instance, an individual who had a single job spell and then retired would be classified as "DP", while an individual who had two different jobs in a row, was then unemployed with benefits, and then had another job, would be classified as "DDMD". A hint about the great heterogeneity in the career paths: out of 84.000 individuals in the sample, we counted about 9.000 different paths.

In a next step we selected the individuals who went into retirement between the years 1992 and 1997, and looked at their final 7 years before retirement. We kept only those who had at least one dependent job over the 7 years. To simplify the multitude of different career paths, we

considered just the last few episodes before retirement, masking with (*) anything that may have occured before. For instance, an individual with path "DuDDMP" would be coded as "*DMP". We thus identify the 7 most common career paths, covering 97% of all the career paths of older workers (table 4-ii). It turns out that transitions through self employment, wage compensation fund and other funds were negligible.

The modal path is indeed the most linear one: 41.4% of all individuals go straight into retirement after an uninterrupted working spell of at least 7 years (path "DP", Table 5). Considering also transitions originating from shorter employment spells (path "*DP"), we get a total of about 75% individuals going into retirement directly from a working spell[12].

A notable 11.4% reach retirement after a period spent in unemployment with benefits, many through the "long mobility" scheme. If this is the case, the incentive provided to firms who re-employ older workers in mobility lists looks quite ineffective at first sight..

About 11% reach retirement after a period of unemployment w/o benefits, 4.2% with a short unemployment spell between job and pension (path "*DuP"). Several workers transit from dependent jobs to unemployment *with* benefits, then loose the eligibility and remain unemployed *without* benefits, and finally reach the pension.

Differences by gender are substantial: 77.8% of men go into retirement directly from work, against 59.3% of women. The opposite holds for transitions from unemployment with and without benefits: 16.6% of women against 10.3% of men for the former; 20.1% of women against 8.9% of men for the latter.

Table 6 displays the results by geographical area. In the North West and North East, direct transitions from job to pension are more frequent, while irregular patterns are more common in the Centre and even more in the South The contrast between the rich North West and the South is sharp. In the former, half of the labour force reach the pension *via* the most stable path, and only 7.5% arrive after a period of unemployment without benefit. In the South these percentages are 29.1% and 18.6% respectively.

Table 5. Different paths towards retirement by gender (retired 1992 -1997)

	Total	**Women**	**Men**
Direct transitions from job to pension	74.6	59.3	77.8
DP	*41.4*	*35.6*	*42.7*
**DP*	*33.2*	*23.7*	*35.1*
Transitions from unemployment with benefits (**DMP*)	11.4	16.6	10.3
Transitions from unemployment without benefits	10.9	20.1	8.9
**DuP*	*4.2*	*6.3*	*3.8*
**DUP*	*3.9*	*8.2*	*3*
**DMuP*	*1.3*	*2.6*	*1*
**DMUP*	*1.5*	*3*	*1.1*
Others	3.1	4.1	2.9

Source: Our calculations based on Inps data.

[12] This figure is coherent with those reported in table 2.2 from Europanel, with similar differences by gender.

Table 6. Different paths towards retirement by area (retired 1992-1997)

	North West	North East	Center	South
Direct transitions from job to pension	80.1	77.6	72	58.4
DP	*49.1*	*38.8*	*38.5*	*29.1*
**DP*	*31.0*	*38.8*	*33.5*	*29.3*
Transitions from unemployment with benefits (**DMP*)	10.3	8.2	12.1	18.6
Transitions from unemployment without benefits	7.5	10.4	12.7	18.6
**DuP*	*3.4*	*4.9*	*3.2*	*7.1*
**DUP*	*2.4*	*3.0*	*5.8*	*6.9*
**DMuP*	*1.0*	*0.9*	*1.6*	*2.0*
**DMUP*	*0.7*	*1.6*	*2.1*	*2.6*
Others	2.1	3.8	3.3	4.3

Source: Our calculations based on "Estratti Conto" data.

Do different career paths lead to different fortunes in terms of individual earnings? In order to answer we slightly reshuffle the path types defined above. Specifically, we disaggregate the path "*DP" into those who had multiple, contiguous job spells and those who had multiple job spells with intervening unemployment periods. This is because unemployment periods may have a negative impact on the wage change associated to the job change, and on the pension benefit, *via* a lower accrued seniority. Next, we regroup those who arrive from an unemployment spell *without* benefits (previous "*DuP", "*DUP", "*DMuP", "*DMUP")[13]. These are by and large the most fragmented careers, and can conveniently be considered collectively.

In table 7 the yearly real wage in one's last position and his/her initial pension are reported (all before taxes). Not surprisingly, the career type with a single job spell before retirement dominates all other paths with respect to both wage and initial pension. Here we find all workers who have had a stable working career and are completely sheltered by the time they retire. Next come those who had multiple job spells, but no intervening unemployment periods. Among those with a direct transition from work to retirement, workers who had multiple job spells *and* intervening unemployment periods are in a worse position.. The median worker has yearly wage and initial pension of about 17,000 and 10,200 euros respectively, compared with 24,200 and 15,500 euros for the "stable" ones.

Consider now the transitions from work to retirement, with an intervening spell in mobility lists. The mobility spell reduces the last wage (this may hide a selection effect: the probability of being placed in mobility is higher for manual workers who earn less than their white- collar peers), and consequently also the initial pension, although – it is worth reminding – periods spent in mobility lists add to seniority as during active employment.

The least fortunates are people who have experienced unemployment spells without benefits and/or periods out of the labor force before reaching retirement. Within this group the variability is higher than elsewhere – see the 90/10 percentiles ratio of both last pay and pension. The (not many) workers who spend some periods in self-employement and/or in professional activities before retirement are in this group. The median is about the same as of those who transit from disjointed multiple jobs to pension. The last wage is similar (16,600 *versus* 17,000 euros), the initial pension is

[13] In order to take out from the last group the inactive – those who voluntarily retired before being eligible for a seniority pension – we selected out the career paths where the non-working spell between last job and pension is longer than three years.

even lower. On average, these workers experienced longer unemployment periods without accruing social security contributions, witness a replacement rate of 56%, way below the previous groups. Note that those arriving from unemployment *with* benefits are slightly below 62%.

It is worth noting the progressivity of retirement treatment *vs*. earned income: within all career paths the replacement ratios are strictly decreasing with earnings. If the accrued pension benefits fall below the legal minimum (at the bottom of the distribution), a guaranteed minimum pension is paid, and the replacement rate can be higher than 100%. At the top of the distribution, the old PAYG system included a progressive cut in the calculation rate applied to yearly wages over (about) 30.000 euros. This provides a remarkable redistributive effect in individual earnings. A simple inequality measure on pension earnings – the 90/10 percentile ratio reported in last column – is always lower than the same ratio on wages.

Table 7. Distribution of earnings by career paths (retired 1992-1997)

		P5-P15 (a)	P45-P55 (b)	P85-P95 (c)	Overall mean	P90/P10 (c/a)
Direct transitions from job to pension						
Single job	*last wage*	14,877	24,221	50,816	30,628	3.4
	initial pension	10,427	15,534	25,815	17,160	2.5
	replacement rate	70%	64.1%	50.8%		
Contiguous jobs	*last wage*	13,830	21,150	44,623	27,082	3.2
	initial pension	9,133	13,815	25,209	15,547	2.8
	replacement rate	66%	65.3%	56.4%		
Disjointed jobs	*last wage*	8,035	17,017	42,812	33,821	5.3
	initial pension	7,585	10,203	21,457	12,217	2.8
	replacement rate	94.4%	59.9%	50.1%		
Transitions from unemployment with benefits						
	last wage	12,480	20,343	35,828	21,725	2.9
	initial pension	9,372	12,552	20,288	13,296	2.2
	replacement rate	75%	61.7%	56.6%		
Transitions from unemployment w/o benefits						
	last wage	6,857	16,603	39,814	22,827	5.8
	initial pension	6,757	9,347	21,255	11,949	3.1
	replacement rate	98.5%	56.2%	53.3%		
Others						
	last wage	5,677	14,042	30,925	17,740	5.4
	initial pension	5,769	6,311	12,311	8,055	2.1
	replacement rate	101.6%	44.9%	39.8%		

Source: Our calculations based on Whip data.
Note: Columns with heading P_i-P_j contain the average earnings between percentiles P_i and P_j.

Econometric estimation

To conclude our exploration, we present the results of a simple OLS regression of the initial pension (= initial yearly pension after retirement in 1999 EU) against a set of covariates that control for individual and job characteristics (previous to retirement), as well as career features before retirement, i.e. time spent in *mobility lists*, unemployment spells, number of job changes. We

account for the different paths from work to retirement described above by means of a set of dummy variables. Data on cumulated lifetime seniority are not available: this omission is the cause of upward bias of the impact of the covariates that embody the effect of seniority, namely gender, skill level and firm size. As regards gender and skill level, it is usually the case that women's lifetime seniority is shorter than male's, and that managers' is longer than manual workers'. As to firm size, seniority in large firms is likely to be longer than in small firms due to the higher risk of closeout or exit from the market place of the latter.

Panel 1 shows the results of OLS estimation. All the covariates are highly significant, and the coefficient sign and magnitude are in line with a priori expectations. In summary:

(i) the marginal contribution of the final yearly wage earned before retirement is about EU 200 of extra yearly pension per 1000 EU of pay (about 2/3 the amount of social security contributions due on that pay);
(ii) each unemployment spell (and/or period spent out of the labor force) has a negative impact on pensions: about EU 25 per month of inactivity;
(iii) if the unemployment spell is covered by social security benefits, the compensation of the negative impact sub (ii) is complete (EU 24.8 per month);
(iv) women's pensions are – *ceteris paribus* – EU 3,729 lower than men, reflecting the shorter lifetime seniority that women, on average, achieve during their working life;
(v) firm size and industry matter too, in addition to their direct impact through the final wage (wages increase with firm size, and some industries pay better than others): a career termination in a small firm (< 20 employees) leads to a 1,363 EU cut in yearly pension against the size benchmark, vs. a net addition of EU 702 for those who leave a large firm (> 1000). Likewise a worker who spent her/his life in the banking industry will receive EU 2,849 more than the industry benchmark (food and textiles), while people coming from the personal service sector will be worse off by EU 455. As explained above, these results may be biased due to the omission of lifetime seniority;
(vi) there is a substantial premium also to skill level. Here too, a higher level in the hierarchy is usually associated with longer seniority and higher employability: the white collars' extra annual pension is 3,518 EU over the manual workers'; the high executives' EU 16,109 higher;
(vii) a direct "smooth" transition from a long lasting working relationship to retirement is our benchmark path. Multiple job changes before retirement (`"contiguousJobs"`) have a modest impact on the amount of yearly pension (- 346 EU). *Ceteris paribus*, paths with a mobility spell between work and retirement ("`unempWITH-Benefits`") lead to a pension cut of EU 1,211 / year. Path types "`unempWITHOUT-Benefits`" lead to a lower pension cut, only 989 EU, surprising only at first sight as this group is highly heterogeneous: it includes careers interrupted by periods spent out of the labor force (possibly of women who opt for household activities), as well as careers of successful professionals who fall outside INPS coverage.

Panel 1. Regression results

Dependent: real yearly gross pension, values in 1999 euros
Observations: 7544
R-Square: 0.649
Adj R-Sq: 0.647

Analysis of Variance:

	DF	Sum of Squares	Mean Square	F	Pr > F
Model	32	3.258586E11	10183080777	433.11	<.0001
Error	7508	1.765262E11	23511751		
Corrected Total	7540	5.023848E11			

Parameter Estimates:

Variable	Parameter Estimate	s.e.	t-value	Pr > |t|
Intercept	-40137.0	9008.1	-4.46	<.0001
last_yearly_wage	0.2	0.004	50.98	<.0001
last_yearly_wage_2	-3.3E-07	8.7E-09	-37.84	<.0001
age	1998.4	316.4	6.32	<.0001
age_2	-19.4	2.8	-6.99	<.0001
woman	-3729.2	145.5	-25.63	<.0001
whiteCollars	3518.5	140.1	25.11	<.0001
executives	16109.0	646.3	24.92	<.0001
North-West	330.7	159.0	2.08	0.0376
North-East	-296.9	179.2	-1.66	0.0976
South	-1152.7	204.6	-5.63	<.0001
Islands	-743.0	274.6	-2.71	0.0068
size_1-9	-1363.5	175.8	-7.76	<.0001
size_10-19	-814.6	210.9	-3.86	0.0001
size_200-999	502.4	170.5	2.95	0.0032
size_1000-	702.7	161.9	4.34	<.0001
settore0	-839.2	599.2	-1.40	0.1614
settore1	2760.1	651.3	4.24	<.0001
settore2	-304.2	212.7	-1.43	0.1526
settore3	6.2	172.1	0.04	0.9711
settore5	110.1	228.3	0.48	0.6296
settore6	-604.5	211.8	-2.85	0.0043
settore7	943.8	294.3	3.21	0.0013
settore8	2849.8	248.5	11.47	<.0001
settore9	-455.6	255.8	-1.78	0.0749
howManyJobs	-52.0	53.7	-0.97	0.3322
monthsNotWorking	-25.2	3.8	-6.66	<.0001
monthsWithBenefits	24.8	4.0	6.27	<.0001
career paths dummies				
contiguousJobs	-346.2	189.5	-1.83	0.0678
disjointedJobs	-1549.9	272.9	-5.68	<.0001
unempWITH-Benefits	-1211.5	202.6	-5.98	<.0001
unempWITHOUT-Benefits	-989.2	215.5	-4.59	<.0001
others	-1954.1	376.5	-5.19	<.0001

Conclusions and policy implications

In this paper we show a two-sided picture of the transitions from work to retirement in the last decade. On one side, we have many workers who have linear working careers and are completely sheltered by the time they retire: all dependent workers in the public sector, and roughly half of the ones in the private sector. The representative individual of latter group is a male employed in a large firm of Northern Italy, regardless of skill level. Should he face a layoff, his chances of rapid re-entry in the labour market are not high, but the safety net of (long term) unemployment benefits schemes are effective in reducing the large negative impact on their future pension earnings. Both the solid career type of this group, and the remarkable generosity of the social security net, point to the possibility of flexibilization of retirement age as an answer to the issues posed by ageing.

The other side of the story however is quite different. About 40% of dependent workers in the private sector (60% in the South of Italy), typically employed in small-medium firms, have careers marked by irregular patterns of labour market activity. Measuring how different career types impact on their wages and pensions yields unequivocal results. While the median last wage of individuals who directly transit from a long lasting dependent job to pension (46% of cases) was 24,200 EU/year in 1999, and the pension 15,000 EU, the same figures for the two paths identified as most fragmented (21% of cases) amount to about 17,000 EU and 10,000 EU respectively.[14]

The case for flexibilization of retirement has been strongly advocated by experts and institutions on equity and efficiency grounds. The extension of working life will reduce pressure on both social security systems and shortage of workforce. The real challenge is social cohesion that may be at risk in the not-too-distant future in many countries of the European Union: the extension of working life is a necessary (although not sufficient) condition in order to face the challenge, but a wide range of measures is required to ease the transition from work to retirement. We agree with this view. The Italian tale of bumpy end-of-career routes (but is it only Italian?) suggests that the costs – private and social – of such profiles can be high. Which implies that measures aimed at easing the transition are all the more important, the higher the frequency of fragmentation near the end of one's working life.

What would be the welfare-efficiency consequences of raising employment levels among older workers? Considering the health and educational status of past and, to a lesser extent, current retiree cohorts, there was indeed a rationale behind early retirement provisions. But this case is rapidly vanishing as the evidence of rapid gains in health status is becoming clear: realistically speaking, an average 55 years old male could, without physical hardship, continue to work for another 10 to 15 years.[15]

On the education side, the story is similar. The education gap (and also the difference in cognitive abilities) between those who today are 60, compared to those who are 45, is huge. But, this gap will close once contemporary older workers exit the labour market: there are no noticeable skill or cognitive differentials between today's 45-year olds and 30-year olds. This is of vital importance on the 'efficiency' side of the coin because it is well-known that the productivity of older workers depends on retraining and skill-upgrading *before* they reach their 50s. And it is equally well known that such investments in training are only effective if workers already possess a strong educational and cognitive basis.

G. Esping-Andersen (2001) has convincingly argued that in order to implement a European strategy of flexibilization of retirement a number of basic parameters must be agreed upon *a-priori.* Firstly, it must be premised on positive actuarial incentives to delay retirement for those who so

14 These may include also (few) individuals who voluntarily choose a more erratic labour market participation.

15 Jacobzone et.al. (1998) show that French men, at age 65, can now expect 10 additional years free of moderate disabilities; German men, a full 12 years. Moreover, the trend is strongly positive, meaning that future 65-year olds will be able to count on far more disability-free years.

may wish without penalizing workers who need to, or desire, early withdrawal. Secondly, it must take into consideration the much more insecure careers and life course of younger cohorts today. Unlike their fathers, young workers today cannot count on a steady, well-paid job for life. Low-skilled workers, according to OECD (1998) estimates, are likely to experience 6-8 years in unemployment. Thirdly, although current pension benefits may occasionally be overly generous in light of retirees' resource strength, this will not necessarily be the case 30 years hence. Therefore a major reduction of replacement rates should not be on the agenda, as it could prove seriously counter-productive in welfare (and incentive) terms.

In addition to these problems, Italy must take action also on the excessive labor cost of retaining older cohorts vis-à-vis the younger ones. A non-marginal reduction of social security contributions for the 50+ is necessary in order, at the very least, to equalize the fiscal wedge between younger and older generations.

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