

The Retirement and Early Retirement Behaviour in Italy: A System Dynamics Approach

Francesco Ceresia*
University of Palermo
Viale delle Scienze - Edificio 15 - 90128 Palermo, Italy
++39 339 2324611
fceresia@libero.it

Abstract

The main aim of this study is underline that System Dynamics approach allows the building of a general framework in which psychological, economic, social, legal and organizational variables converge to describe the retirement behaviour and its main unintended consequences. It's emphasized that organizational commitment and psychological contract breach play a considerable role in the dynamics of retirement behaviour. In the first part of this paper, an analysis of main contributions in the retirement and early retirement fields is outlined. Further, the psychological, social, economical and legal approach to retirement behaviour is also briefly remarked. In the second part, retirement phenomenon, dynamics of the key-variables, problem issues, feedback analysis of adopted public policies, unintended consequences of public policies and policy design to remove these consequences are discussed. Results confirm that system archetypes are fundamental in the understanding the complex system that countersign retirement behaviour.

1. INTRODUCTION

One of the main issues European countries are compelled to deal with today, is a constantly rising number of retired people. Since medical and social achievements have assured longer and better quality life expectations and, on the other hand, the number of births per year is diminishing (Chagny et al., 2001), populations seem to be growing older and older. More and more senior citizens are experiencing retirement and for a longer period than ever (Fouquereau, 2005).

The change in the workforce dynamics, generated by the phenomenon of aging populations, has created difficulties in keeping costs of Social Security outlay within the EU imposed limits: the determination of retirement expectation management strategy.

Between the 1950's and the 1970's the general tendency recorded was of people retiring at a younger age (Gendell & Siegel, 1996), until the situation reached stability. Recent statistics show a slight increase in average retirement age (Besl & Kale, 1996). A trend recorded in Italy nowadays, specially among workers employed in public administration, is that of early retirement (i.e. soon after having gained the right minimalis). The Government sometimes has been compelled to freeze retirements in

* Assistant Professor in Work and Organisational Psychology, University of Palermo, PhD in Work and Organisational Psychology, University of Bologna (Italy), Master in Managing Business Growth through System Dynamics and Accounting Models, University of Palermo

order to contain economic, social and political damage thus forcing people to continue working against their will.

Though traditionally meaning withdrawal from work because of old age, difficulty of carrying out a job due to bad health, today many people look forward to retirement with enthusiasm. Yet, others live this stage of life with trepidation, despite the fact that the overall income of retirees has improved (Greller, 1999).

The scenario covered by the pathways to retirement is in aspect varied and multifaceted, it includes: part-time work, bridging employment, intermittent work and self-employment (Davis, 2003). In order to investigate this transition in the lives of individuals effectively, a multidimensional approach is necessary. An approach able to interpret one of the most important steps in life, bearing incisive economic, psychological and social outcomes (Aaron, 1999; Arkin, 1998): a systemic approach capable of identifying, describing and validate the determinant factors involved in retirement, and their consequences (Nuss, 2002).

Studies on retirement have been carried out following two main trends:

- 1) the social-psychological field;
- 2) the political-economic field (Robertson, 2000).

The former deals with the nature of decisions, leading to retirement and relative gradient of life fulfillment and satisfaction (Cliff, 1991; Knesek, 1992; Maule et al., 1996; Palmore et al., 1984). The latter more technically analyses the social, economic and political contexts in which retirements occur as a historical contingent labor management strategy (Guillemard & Rein, 1993; Jackson & Taylor, 1994; Kohli et al., 1991; Walker, 1982).

Studies of retirement have mainly followed two substantially different approaches:

- identity-based theories (Hall & Mirvis, 1995), emphasize on the individual's coping and adjusting behaviour;
- multidimensional theories, consider systemically the social, organizational and political factors as well as individual factor.

Systemic theories have developed numerous models, yet the limits reported are such that only parts of the models are applied in the study of retirement. The difficulty in collecting data and controlling the many variables constitute a limit in systemic approaches (Greller & Simpson, 1999). Evidence has recorded how the various parts of the models are applicable, testable and valid.

Greller and Stroh (1995) and Griffith (1997) for instance on these bases suppose that an extending career viability be hypothesized to foster changes in a country's demography. The question however remains on how to go about extending career viability. These approaches appear very complex and ask for a number of variables, which range from macro-economic and government policy, through organization policies and practices, to small group behaviour and interpersonal relations. Whereas Griffith (1997) analyzes each variable in turn, Greller and Stroh (1995) accentuate the importance of tracing the interrelationships among the variables.

Different segments of this complex model have given effective evidence of their validity. Economic development and economic systems strongly influence the opportunities, but has also an impact on individual career behaviour and the possibility of investing in one's career (Calasanti & Zajicek, 1997). Health and productivity are deeply related to the social structure, both within and outside the organization (David & Patterson, 1997), while individual career motivation can be specifically shaped by organization (Bailey & Hansson, 1995; London, 1990).

2. MAIN PROBLEM ISSUES

Public decision makers have attempted to engage the most adequate retirement management policies, able to sustain the middle/long term economic balance and at the same time gather social approval.

The containment of the public expenses, through limitations on the vested rights acquired by the workers, regarding eligibility conditions and benefit levels are what public decision makers are pursuing. This, in fact, has often allowed curbing the public pension expenses within the desired limits.

Nevertheless, there are no current studies capable of tracing the effects of such public policies on organizational commitment and job motivation (in particular for elderly workers directly affected by this new retirement regulation). The fact remains that a high percentage of workers has endured an abrupt change of their retirement contractual conditions due the public policies decisions made by all national governments. In this sense, it's possible to hypothesize that many workers have interpreted the new severe retirement regulations as a psychological contract breach, with a easily comprehensible effect on the relationship between individual-organization (Rousseau, 1989, 1995; Morrison & Robinson, 1997). This phenomenon is imaginable as particularly true for those elderly workers who founded their bond with the organization upon a normative and continuance commitment (Meyer & Allen, 1991, 1997). In fact, normative and continuance commitment are respectively based on the rigorous respect for the established rules and on the evaluation of the cost-benefit investment-profit criterions. The decreasing of economical advantages after the limitations imposed on an important worker right, considered for a long time as a vested right, appears a sensible reason to hypothesize a correspondent diminution of the level of organizational commitment (Guzzo et al, 1994; Robinson & Rousseau, 1994; Robinson et al., 1994; Turnley & Feldman, 1999, 2000).

The implications of a reduced normative and continuance commitment of elderly worker on overall organizational performance are easily foreseen, especially in consideration of the correlation between hierarchical role and seniority. Obviously, the impact factor of this phenomenon on organizational performance is as much bigger as much elderly workers are involved.

A decrement of the level of worker's organizational commitment produces appreciable consequences both at an organizational level of analysis (less productivity and quality, less talent retention, bad performance of financial indicators), and at an individual level of analysis (more absenteeism, turnover, lowering both qualitative quantitative job performance, reduction of prosocial behaviour). The lowering of employees' organizational commitment influences workforce performance and contributes to the deterioration of the quality of organizational climate, and this effect is traceable in a short term period.

Moreover, in a long term perspective, lowering standards of organizational performance may compromise the organizations' ability to compete in a growing aggressive and global market, and this may affects the overall national production system and inhibits growth of gross domestic product (GDP). Such hypothesis is supported by some data related to behaviour of Italian gross domestic product, where in the last 8 years Italy GDP has grown much less than the GDP of the other European countries - yet the organizations compete in the same markets and observe the same international laws -

and the same period has been characterized by the most important changes on Italian retirement laws, that had become much more severe.

3. AIMS OF THE STUDY

The main purposes of the present study are to emphasise how:

1. System Dynamics is a powerful methodology in the exploitation of the advantages of a systemic approach in the understanding the complex system (Sterman, 2000; Wolstenholme, 2004) that countersign retirement behaviour.
2. System Dynamics approach allows the building of a general framework in which psychological, economic, social, legal and organizational variables converge to describe the complexity of retirement behaviour and its main unintended consequences.
3. Organizational commitment and psychological contract breach play a considerable role in the dynamics of retirement behaviour. These variables are responsible of unintended consequences caused by retirement public policies aimed to manage the costs of national social security. In particular is hypothesized that:
 - a. The workforce's perception of psychological contract breach and the level of their organizational commitment are the engines of two main reinforcing feedback loops. This allows to define some unintended consequences and to explain the national government's Public Policies, applied in the last ten years (1994 - 2004), aiming at curbing pension expenses by Social Security National System.
 - b. Human Resources Management Policies activated by organizations are particularly effective in contrasting the lowering of organizational and job commitment, fostering organizational performance and, in a middle and long-term perspective, increasing GPD. This may suggest the opportunity of public economic investment to support organization efforts aimed to contrast the lowering of workforce's organizational commitment.
4. System Dynamics methodology is really effective in a strategic planning setting. It is useful in supporting both public and private decision makers, in the exploration of alternative scenarios (Morecroft, 1984) and in fostering organizational learning processes (Sterman, 1994; 2000). Results from strategic scenario sessions have also been used to design an empirical test of the identified successful policies.
5. System archetypes are fundamental in the understanding of the complex retirement phenomenon, assisting model conceptualization and identifying the most effective policies, and consolidating desired behaviour key-variable patterns (Wolstenholme, 2004).

4. THEORIES ON RETIREMENT

When attempting to define the social and psychological implications due to the phenomenon, general attitude and motivation toward retirement constitute central aspects.

Four main trends are generally pursued in the analyses of this important transitional experience: role theory, continuity theory, life course perspective, life span development-transition theory

Role Theory

In terms of role, retirement may be seen as a loss of identity and deprivation of a functional role in society (Merton, 1957; Moen et al. 1992; Riley & Riley, 1994). Some interpret retirement as a stepping out of the scene; this can cause anxiety and frustration (Rosow, 1967; Thoits, 1992). Under such perspective retirement definitely assumes negative connotations (Burke, 1991) and negative psychological implications, especially for those who live their job as their central and most important role in life (Quick 1998). This is particularly true for European and North American culture, that are a work-oriented and in which work play a central role in individual's life (Terkel, 1985). Friedmann & Havighurst (1954) proposed a five-point typology of the meanings of work: source of income, life routine structuring the use of time, source of personal status and identity, context for social interaction and meaningful experience that can provide a sense of accomplishment.

According to role theory, some experience positively this stage if the possibility of maintaining the same role, or even slightly modified, is feasible in a post-retirement occupation and having tolerated a job and career they did not enjoy, look forward to escaping an offensive and distressing role (Wheaton, 1990).

Continuity Theory

Considering a continuum, from the time of birth to the time of death, retirement is only one step in the life of an individual. The continuity theory considers retirement one of the many phases in life, hence one's lifestyle is no to be undermined by the new condition.

According to this theory, a satisfactory retirement experience heavily depends on the ability to maintain one's own lifestyle or in the pursuitment of goals planned prior to retirement. Those who are found unprepared and live retirement as an unexpected disruptive event do not fully enjoy their retirement years (Quick, 1998). Most commonly retirees keep a set of general personal goals throughout their lives, adjusting to the new condition without excessive effort (Atchley, 1982).

Life Course Perspective

The abandonment of the primary source of employment at an early age has traced new multidirectional trajectories, laying the base for a new research stream: the Life Course Perspective (Cliff, 1991; Hanks, 1990; Mutchler et al., 1997). Life Course Perspective interprets retirement as one of the possible choices an individual can make. It can be enumerated amongst the events in one's life, and the way it is enjoyed greatly depends on the way it occurs (Elder, 1992; 1995). The decisive variable is time, which is a crucial factor in the prediction of retirement satisfaction, before or after society has determined to be acceptable (Moen, et al., 1992).

Early retirement has subverted the normal work/retirement pattern: withdrawal from work as an institutionalized withdrawal from paid labor force at a determined socially established chronological time together with the right to public old-age benefits.

Retirees are following various paths leading out of the labor force. Researchers are thus focusing their attention on understanding the nature and consequences of these new and diversified choices (Mutchler et al. 1997).

Life span development-transition theory

The development theory looks to retirement as an event in the continuous flow of experiences of one's life. The satisfaction of this new stage of life is due to various predictors: personal identity, social role, beliefs, past experiences, goals and general health conditions (Baltes, 1987; Fiske & Chiriboga, 1990).

The abrupt happening carries life lasting effects and little time for adjustment. It certainly brings forth major changes in the habits of the individual's life which need be reorganized and adjusted (Parkes, 1971), putting retirees through much psychological stress (Theriault, 1994).

As Floyd et al. (1992) points out, a synchronic and diachronic view is crucial when trying to assess the effects of retirement and when attempting any theorization: evaluations of past experiences, feelings, present condition, and plans for the future.

5. RETIREMENT AND AGE

Management and staff management policies, especially those inspired by neoclassical economic models, do not esteem older worker (55 – 65 years) productivity in positive terms (Czaja & Sharit, 1998).

An ample literature (Kirasia, et al., 1996; Park, et al., 1997) acknowledge how some stereotypical conceptions about older workers (correlation between ages, lower quality performances, psycho-physiological decline) are responsible for specific management choices; for example, professional training for older workers is not valued a profitable investment (Cerella, 1990; Salthouse, 1996; Seitsamo & Klockar, 1997; Watanabe & Imai, 1998).

As Greller & Simpson (1999) underline, a wide literature have not confirmed at all a lots of prejudicial instances, established upon the existence of a direct causal correlation between retirement and age (Barfield & Morgan, 1968; Burkhauser & Quinn, 1989, 1990, 1994). In fact, actually it's possible to assert that:

- there are no empirical evidence that support the thesis that decline in cognitive abilities is main factor that affect work performance;
- decline older worker's performance is only presumed and not supported by sufficient data, as claimed by neoclassical economy models;
- aging may be interpreted as a sequence discrete series of transformations throughout lifetime rather a continuous process of decline, as continuity, life course and life span development theories suggest;
- specific expertises and differences of older workers may be productively exploited to gain competitive advantages.

Older workers are not inevitably bad workers; they are simply older workers

Proposition 1. Retirement often may represent a loss of distinctive professional competencies for organizations, chiefly if it's has been the direct or indirect consequence of older work performance prejudicial devaluation by the management

6. RETIREMENT AND DECISION MAKING

Personal disposition, financial resources, health conditions, demands of the workplace, family contexts, economic policies and so on, are the main factors that researchers take

into account in the study of retirement decision making and successive adjustment (Robinson et al., 1985, McCrae & Costa, 1984).

For workers the decision to retire is never easy. There are forces that will act with an attractive drive toward retirement and, on the other hand, others that will push the worker away from work. As poles of a magnet, these forces either push or pull to the decision of retiring (Schultz, et al. 1998).

The same real reasons are not always conscious to the individual: some are able to state them soundly, while others will adduce public explanations to serve as management justifications or ego defences, yet others may list a number of reasons (Bazzoli, 1985; Henretta et al., 1992).

Since these forces often act simultaneously on the individual, it has been suggested that both push and pull forces have to be considered in the analyses of retirement decision making (Feldman, 1994; Hanisch et al, 1998; Hardy & Quadagno, 1995; Taylor & Shore, 1994). A push force is generally generated by a negative factor like poor health, a drudging job, management restructuring and so on. Instead, a pull force is generated by a positive factor like free time for leisure activities, volunteer work for the community, or pursuit of a goal.

Moreover, the same events may act as a push or pull factor. No two workers are alike and context normally influences the general sentiment and decision making. Early retirement incentives, for instance, may be felt either as a strategic management push out of the employment, or as a favourable opportunity to be gathered (Hanks, 1990). These forces are still active longer after the decision is made throughout retirement, sometimes even alternating the polarity in the push/pull scheme, influencing positively or negatively the lives of retirees (Schultz et al., 1998).

The vocational development theorists claim that an event is socially rated push or pull factor, according to the social context in which the worker has construed his/her vocations and ideals (Gottfredson, 1981; Vondracek et al., 1986). From this perspective, not all workers react in the same manner under the pressure of push and pull energies.

What seems to be a deterrent for some people to abandon work may trigger into others a renewed motivation to better his/her performances. For instance: having to learn new skills, may cause frustration to some older workers already inclined toward retirement, thus the event will only accelerate the process; for others, learning new skills can bring new stimuli, spurring interest and excitement, moving people to maintain work.

Proposition 2. Very frequently people make the decision to retire under the influence of multiple reasons and motivations. As consequence, more comprehensive models of the retirement behaviour need to be suggested, in order to control high number of variables and their cause and effect relationship. This regard justifies the necessity to investigate retirement process with a multidimensional and systemic approach.

7. EARLY RETIREMENT AND DECISION MAKING

Early retirement is viewed as a personal decision. Researches at a micro-level of analysis, focuses on individual and personal reasons, leading to retirement decision making.

The most attractive attempts to explain early retirement feature on some of these aspects and may be summed up as:

- the “health versus wealth” dispute (Bazzoli 1985; Knesek 1992; McDonald & Wanner 1990; Palmore et al., 1984);
- the “push and pull” factors (Maule et al., 1996);
- “voluntary” versus “involuntary” early retirement (Cliff, 1991).

The social analysis of the context is limited to the social apprehension of work and retirement (Guillemard & Rein 1993, Walker 1985). Early retirement as a product of structural arrangements within society, in the overall labour force, constitutes the matter of analysis of political and economic research. Though characteristics of individuals are also considered (gender, class, race and occupational group), the researches that work in this field stream focuses on the structural macro-level of analysis (Robertson, 2000).

In a recent study, Heyma (2004) note that elderly employees decide to retire early because of five main reasons, which are also strongly interrelated one each other:

- attractive retirement programmes that combine high replacement rates with more leisure time;
- early opportunities to use these programmes;
- high preferences for retirement;
- a layoff risk that rises with age;
- health conditions that force people to retire.

There are three possible choices for the worker who decides to retire early: a) abandoning the paid labour system before the scheduled age; b) choosing bridge employment before complete retirement; c) choosing a bridge employment in the same or different role or industry of former work (Feldman, 1994).

The possible roads leading to retirement are many and diversified; some are even determined by casual and unconscious decisions. This makes prediction more difficult for researchers (Hansson et al., 1997).

Proposition 3: Early retirement may represent a real debacle for organizations, particularly if retirees show to still possesses interest and motivations for achieving a new job in the same role of former work, and to be paid by competitors.

8. RETIREMENT AND PUSH AND PULL VARIABLES

Numerous studies have led to consider some factors as particularly meaningful in retirement decision, identified as precipitating events. These variables can be clustered into three main categories:

- personal variables
- job and organizational variables
- psychological variables.

The following sections will explore the main variables clustered into these three categories.

Retirement and Personal Variables

In the analyses of personal variables that may influence retirement decision, many researchers have focused their attention on the different aspects characterizing an individual’s life. These variables may be clustered in four main categories that have been identified as below described:

- financial status

- health and physical conditions
- interaction with the spouse's working position
- pension plan incentives

Family budget certainly constitutes a critical factor when facing retirement (Talaga & Beehr, 1989; Taylor & Shore 1995; Ward, 1984; Schultz et al., 1998). An older worker's financial status generally include current assets, social security and pension expected incomes, health insurance, family members still at home and so on (Karoly & Rogowski, 1994; Wise, 1996). Financial pressure in any of these segments of the overall financial status may lead to avoid retirement or even trying re-entry, if individual has already retired (Hansson et al., 1997).

Poor health conditions and physical limitations are equally strong pushers in retirement decision making (Parnes, 1981; Taylor & Shore 1995; Clark & Spengler, 1980; Åstrand et al., 1988). The decision may also be determined by the health of one's spouse. Here behaviour of men differ from that of women: men tend to remain working when the wife is in poor health in order to provide finance for proper medical care and sustain added costs; women tend to retire from work to support and personally care for the husband in poor health conditions. Researchers have also stressed the importance of financial incentives in the process of retirement decision making (Siddiqui, 1997; Wise, 1997).

National and international social and economic scenarios play an important role in the process of assessment their own financial and health status. In fact, before 1980 retirees, who enjoyed good health and good economic conditions, appraised experience of their own retirement as very satisfactory (Barfield & Morgan, 1978; Streib & Schneider, 1971), whereas after 1980 many retirees admitted that they would have gladly preferred working longer to increase their income (Atchley, 1989).

Retirement and Job and Organizational Variables

Working environment, organizational climate and job commitment are usually strong factors in retirement decision making. A worker needs to feel that his career is open to opportunities and alternatives able to enforce his sense of identity and socio-economic fulfilment (Brown et al., 1996).

Work management strategies often call for structural reorganization, leaving the worker with little choice but to retire or bear lack of challenge and de-motivation in the workplace.

Individual who compare with job difficulty will more likely be attracted by retirement (Gustman & Steinmeier, 1994). The Danish Work Environment Cohort Study (DWECS) led by Borg & Burr (1997) acknowledged that job difficulty often manifests itself with low decision authority, low skill discretion and high ergonomic exposures which often lead to early retirement in the form of long term unemployment.

In the predicament of retirement quality and satisfaction, former studies took into account only a single employment-related variable, thus avoiding a broader spectrum of the workers career experiences. Some of the aspects studied were usually: commitment to work, suitability with the job, and other aspects, linked to the occupation just prior to retirement. Researchers who attempted to draw a broader image of work experience (keeping under control different variables at the same time), never crossed the barrier of the last job kept.

Recent researches suggest a contextualized study of the retirement episode through the history of the entire working experience of a person's life (Quick & Moen, 1998).

Others studies have analysed the cause and effect relationship between retirement decision making and organizational commitment (Steers, 1977; Meyer & Allen, 1997), adopting a triadic model of organizational commitment, articulated in affective, normative and continuance commitment (Meyer & Allen, 1991). Affective commitment relates to the emotional personal involvement, attachment the worker feels for the organization he works for, and dedication in pursuing the organization's goals; normative commitment is less related to emotion that it is to sense of duty and social values expressed through loyalty and engagement; finally, continuance commitment refers to the cost-benefit investment-profit criterion by which the worker is bound to the organization (Meyer & Allen, 1991, 1997).

Retirement and Psychological Variables

Many psychological factors influence retirement decision making. Ekerdt & DeViney (1993) acknowledged that the closer people get in reaching retirement age, the more distant they get from work. Living their job as a burden, they gradually get into the frame of mind of the "retiree to-be", feeling less attached by the day.

A general sense of career attainment may also play a significant part in the decision making process: after having satisfied one's employment intents, the worker feels gratified and ready to retire at his terms, voluntarily. In these cases retirement is felt like the just reward for a life of sacrifice and determination (Atchley, 1976; Barfield & Morgan, 1978; Streib & Schneider, 1971; Taylor & Shore, 1995).

Some behavioural psychological models may be considered predicative for early retirement: e.g. getting habitually to work late or taking long leaves and absence (Blau, 1998; Hanisch et al., 1998; Johns, 1998).

Just like other transitions in life (marriage, home leaving, divorce etc.), retirement may be sensed as potentially disruptive whereby the unknown, unpredictable and uncertain future may cause great fears and worries. The potential threat, deriving from the unknown future, may cause disruptive emotional states and the level of anxiety may be such as to interfere with coping and adaptive behaviour.

Researchers have identified four principal psychological attitudes towards impending retirement decision making:

1. fear of losing identity and social role, missing out social integration for having lost an active part in society;
2. hope that the free time available provides the chances for leisure activities and promote social interaction, new possibilities for making friends;
3. fear of being cut out from former circle of relations (sometimes the workplace is the only place for socialization), losing interactions with former co-workers, anticipation of social exclusion;
4. fear of losing friends, since in many cases work is the only possible place for friendly relationships.

The most common psychological symptoms, manifested in the period preceding the impending event of retirement, may be summed up to describe a generalized condition called *retirement anxiety*.

Plurality of life worlds is the definition used by Coser (1991) to describe social integration. This perspective assumes that health and longevity seems to be fostered by a plurality of life worlds (work, family, community, religious community, associations and adult education) for both men and women (Berkman & Breslow, 1983). Since the employment context is a favourable vehicle of social integration and identity, retirement

planning ought to consider ways of replenishing the loss of roles and purpose. As widely noted by many researches, both physical and psychological well being is promoted by social integration. A gratifying retirement experience depends on the ability of keeping multiple active roles, sense of purpose, identity and community (House et al., 1988; Marks, 1977; Sieber, 1974; Thoits, 1983, 1986).

Proposition 4: Retirement decision making is a complex process involving a three main categories of variables: personal, job and organizational, psychological variables. The worker's final decision is influenced by a synergic and mutual relationship among these variables.

9. RETIREMENT AND LIFE SATISFACTION

Studies conducted to explain the psychological and social impact of retirement on retirees life in terms of quality of life and well-being, have proved quite contradictory (Fouquereau 2005).

Researchers have identified four factors able to predict life satisfaction levels of retirees.

1. socio-demographic aspects such as gender (Quick & Moen, 1998), age (Hanson & Wapner, 1994), marital status (Demo & Acock, 1996), and occupational status (Gee & Baillie, 1999);
2. personality traits (Taylor-Carter, & Cook, 1995), mental and physical health (Hardy & Quadagno, 1995), attitude toward aging and retiree role (Matila et al., 1990);
3. reasons leading to retirement decision making (Fouquereau, et al., 1999), voluntarily or involuntarily retiring (Gall et al., 1997), preparation and ahead planning (Taylor & Shore, 1995);
4. cultural, economic, and social factors (Ekerdt & Clark, 2001).

The balancing forces acting between “push” and “pull” factors may be found to be decisive in retirement decision making (Williamson et al., 1992). In fact, making the decision to retire under more push than pull factors, worker may feel forced to abandon the career against his will (Williamson et al., 1992). On the other hand, when the perception of pull factors is stronger than the push factors, the worker decides to retire with no regret; leaving a part of life ready to face willingly a new phase, experienced by the individual as a normal consequence (Hardy & Quadagno, 1995).

Calasanti (1996) underlines that a satisfying career constitutes a valuable predictor of a satisfying retirement experience and some have noted that negative factors gain weight even after retirement.

Though the influence of “push” and “pull” factors is acknowledged by many researchers to play a fundamental role in the decision of retirement and in adjusting afterwards, there are no specific studies on how these are perceived differently in relation to voluntary and involuntary early retirement.

A successful and satisfying retirement experience seems to strongly depend on the way decision is made: higher life satisfaction scores were recorded by those who interpret their retirement as voluntary than those who bear it as an imposition (Gall & Evans, 2000; Maule, 1995).

A research conducted by Herzog et al. (1990, 1991) among workers aging between 50 and 70 reported lower levels of health and well-being in those who felt either constrained in their job or pushed to retire under external pressures, compared to those

whose participation in the workforce was felt influential or those who perceived retirement as a voluntary decision.

Normally workers are active and purposive in retirement decision making, yet if by chance they happen not to be responsible for retirement timing, due to organizational reasons (downsizing, structural reorganization) they feel rejected and frustrated (Fields & Mitchell, 1984; Hanks, 1990; Hayward & Hardy, 1985; Quinn & Burkhaner, 1990). Some forms of employer-provided incentive programmes and buyouts, may be responsible for retirement satisfaction only if considered in relation to timing factors. Hardy and Quadagno (1995) found that those who had time for planning retirement ahead within a period of two years or more, were generally more satisfied than those who were confronted with a buyout, allowing less than six months time for deciding (Greller 1999). Having less time to gather information and adjust to the idea of retiring, some workers live the experience with anxiety and trepidation.

Proposition 5: Workers may experiment life satisfaction after retirement if it's interpreted as voluntary, and not influenced by push factors, especially in the case in which this push factors are linked to organizational reasons like downsizing and structural reorganizations. Moreover, the retirement is joined to life satisfaction if worker have at least two years or more to plan his/her retirement.

10. EARLY RETIREMENT AND LIFE SATISFACTION

Physical and psychological well being is fostered by social integration and multiple role occupancy to the extent that some researchers come to the conclusion that early retirement can even be deleterious in person's life (McGoldrick, 1989; Palmore, Filenbanm, & George, 1984; Palmore et al., 1985).

Older individuals are better off when retirement is delayed or when losses due to retirement are compensated with new roles (paid work or unpaid volunteer work) and relationships (Barnett et al., 1992; Gore & Mangione, 1983; Kandel et al., 1985; Miller et al., 1991; Moen et al., 1989, 1992; Nathanson, 1980, 1984; Thoits, 1986; Verbrugge, 1983, 1985) Some studies suggest that early retirees had worse consequences than those who delayed the retirement decision, whereas when the decision to retire early is determined by poor health, the workers claim better physical and psychological conditions after retirement: feeling relieved from the strain and stress of demanding jobs (McGoldrick & Cooper, 1988).

Proposition 6: Potentially early retirement is a deleterious event in person's life if isn't compensated with new social roles and relationships.

11. RETIREMENT AND DYNAMICS PROGRAMMING MODEL

Rust and Phelan (1997), Benitez-Silva *et al.* (2000) and French (2000) analyze retirement behaviour with models in which the variables are dynamically entwined. This approach underlines that retirement decision making process may be best explained when the traditional variables, such as earnings, benefits, pensions and health conditions are considered together with other variables such as social, organizational and work policies in a dynamic models.

Social insurance, pension provisions and health insurance structure determine variations in the retirement incentive system, making socio-economic circumstances unpredictable. Any change in the incentive framework is a result of other changes in the structure. Similarly any policy measure, attempting to modify the labour force system, should not be considered in isolation.

Since the 1970s this frame of thought has been responsible for the development of structural dynamic programming. This approach was a reaction against classical approaches that were able to explain retirement behaviour only partially.

In the same period, the theoretical lifecycle framework attempted to interpret the phenomenon of retirement taking into account also future possible opportunities as well as current factors (Feldstein, 1974).

Some studies founded that the entire stream of future earnings is more decisive in determining early retirement than annual values alone. Lifecycle compensation and particularly eligibility structures may be clear indicators of behaviour of workers in retirement decision making (Burkhauser, 1979, 1980; Burkhauser & Quinn, 1983).

This new trend of analysis tended to include information about lifecycle income patterns, even though future assets could only be estimated (theory of rational expectations) and constituted a very unpredictable variable (Anderson et al., 1986).

Gustman and Steinmeier (1986) produced a model based on the structural and empirical factors of retirement. This model emphasizes on the optimization of lifetime utility, determined by consumption and utility. It was able to furnish detailed lifecycle compensation profiles which explained peaks of retirement at the age of 62 and 65 in the USA. Though not of general application for lack of flexibility, this model constitutes a big step toward structural analysis of retirement (Karlstrom et al. 2004).

Dynamic models better explain retirement behaviour than any static models, due to its ability to furnish long term evaluations of opportunities and effects of changes in uncertain future circumstances. The studies conducted by Lumsdaine *et al.* (1990), Stock and Wise (1990), Berkovec & Stern (1991), Blau (1994), Christensen & Gupta (1994), Daula & Moffitt (1995), Heyma (2004), Rust et al. (2000), broadly confirm this thesis.

Labour force participation and retirement decisions in the Netherlands constituted the subject matter of a study conducted by Heyma (2004). The determinant factors in the choice of retirement age and route include social insurance and private pensions, eligibility conditions for early retirement, lifecycle wage and health profiles, and layoffs. All of these components were contemplated in his dynamic programming model.

The prime elements determining retirement decision making was represented by institutional incentives such as benefit and pension programmes, particularly eligibility conditions and potential substitution between exit routes.

Proposition 7: Results from retirement studies have convinced many researches about the difficulty to satisfactorily understand retirement behaviour without a methodology that allow analyzing the dynamic relationships among the considered variables.

12. RETIREMENT AND PUBLIC POLICY MANAGEMENT

Labor force participation among elderly workers is what all European governments are seeking. As Heyma (2004) notes, in 1999 the Dutch government asked advice from the Social Economic Council (SER) for effective participation policies. SER's expert opinions inferred to policy measures as being responsible for labour behaviour. A significant change in the trend of retirement decision making, in the sense of limitation may be favoured by restrictive policies in eligibility conditions, reduced replacement rates, changed ratio between benefits and wages, rising of wages with age (Heyma 2004).

A studies conducted by Karlstrom et al. (2004) demonstrates how Sweden's public old age pension system affects the retirement decision. The author conducts an empirical analysis and developing a dynamic programming model for the retirement decision. The simulations results suggest that economic incentives, both through the public pension system and through rules on mandatory retirement age, influence general retirement trends. Moreover, this same simulations show how benefit levels do not keep workers longer on their job. Elderly workers who have considerable wealth levels to fall back on are willing to trade income with leisure time. An empirical analysis of retirement behaviour and its interaction with work and retirement policies in lifecycle perspective is fundamental, in any attempt of designing a workforce participating policy.

In conclusion, it seems widely confirmed that dynamic models can provide a better comprehension about retirement phenomenon than static ones (Rust, 1989).

Proposition 8: Studies on retirement based on dynamic programming model have demonstrated that these models made possible the measure of changes in uncertain future circumstances, through a simulation of public policies and an analysis of their impact on key-variables of the observed social system.

13. THE RETIREMENT BEHAVIOUR IN ITALY: A SOCIO-ECONOMICAL AND LEGAL PERSPECTIVE

Definition of pension

The term "pension" is intended as a regular payment disbursed by Public Administrations and Public and Private Corporations to former workers for the following reasons: determined age; required length of service and contributive payments; lack or reduction of working ability due to congenital or sudden impairment; death of guardian; particular merits towards the country. The number of pensions may not to coincide with the number of eligibility conditions, however many people can profit from more pensions.

The Italian Retirement System contemplates various forms of guardianship for an ample number of beneficiaries. The salient characteristics are here delineated with reference to the relative legislation actually in vigor since December 31st 2002.

The present work deals with five different typologies of pensions. The purpose of this study is to understand the dynamics of voluntary retirement behaviour, due to job and organizational push factors.

The data have been elaborate on the base of the System of Classification of the Retirement Services, predisposed by the ISTAT (Italian Institute of Statistics) in accord to the established criterions in the European System of Classification of the Social Services.

Following different typologies of pensions are introduced, and their broad definition is furnished:

1. Old age and Seniority Pension (OSP).

Retirement treatment corresponded to the workers that have reached the age established by the law, and that they have the least contributive requisite.

Recipients of old age pension, since the year 2001, must have disbursed at least 20 years of contributions, together with an age equal to 65 years for men, and to 60 for women.

The requirements for seniority pension, until 1992 (law 438/92), consisted in a minimum number of annuity of contributions to its own Social Security System (public or private). For employees in the public administration, retirement was possible with only 15 years of seniority.

The public retirement reformed system dates back to 1992 (D.L. 503/92), followed by the approval of the law 335/95 and following integrations, applied in the law 449/97. Legislation related to seniority pensions has been modified, introducing two possible access channels to retirement:

- the first one simply asks for contributive seniority;
- the second requires seniority and having reached a determined age.

The contributive requirements, in vigor since December 31st 2001 for the first channel of access (seniority retirement), are equal to 37 years of contribution for public and private employees and to 40 for the independent workers.

The access to pension is also allowed in private employment with 35 years of seniority if the worker is at least 56 years old, 55 years old in public employment and 58 years in independent work.

2. Relief Pensions (REP).

They include the social pensions, social allowance, the pensions to the not seeing civilians, to the not hearing civilians, and to the civil invalid and the pensions of war, comprehensive of gold Medal allowance, Medal and Cross to the Military Value allowance.

3. Indemnity Pensions (INP).

Pensions corresponded following an accident on the job, for cause of service e/o professional illness.

4. Invalidity and Civil Invalidity Pension (ICP).

Pension disbursed in presence of infirmity physical or mental man to provoke a permanent reduction of the ability of job to less than a bystander in suitable occupations to the attitudes of the worker (check of invalidity), or such to provoke an absolute and permanent impossibility to develop any job (pension of inability). Pension disbursed to the citizens with insufficient incomes and with a reduction of the ability of job or superior carrying out of the normal daily functions to 73%.

5. Survivors Pension (SUP).

Retirement treatment disbursed to the survivors of retirees or insured in possession of the requisite of insurance and contribution required.

The dynamics of overall retirement in Italy (1975 - 2004)

As fig. 1 shows, the dynamics of overall retirement in Italy from 1975 to 1992 is characterized by an exponential growth, till 1993. The successive period (1993 - 1997) is marked by the main public reforms in the Social Security National System, which limited eligibility conditions and imposed severe rules on mandatory retirement age. At the same time many benefits were cut down to restrain public retirement expenses. Conventionally, in this study we call these retirement reforms as “Labour Force’s Participation Public Policies”.

These reforms have had the positive consequences of inverting the exponential growing tendency, as shown by the s-shaped curve observed in figure 1. The last period (1998 - 2004) is characterized by little adjustments, due to particular and contingent national and international economic scenarios.

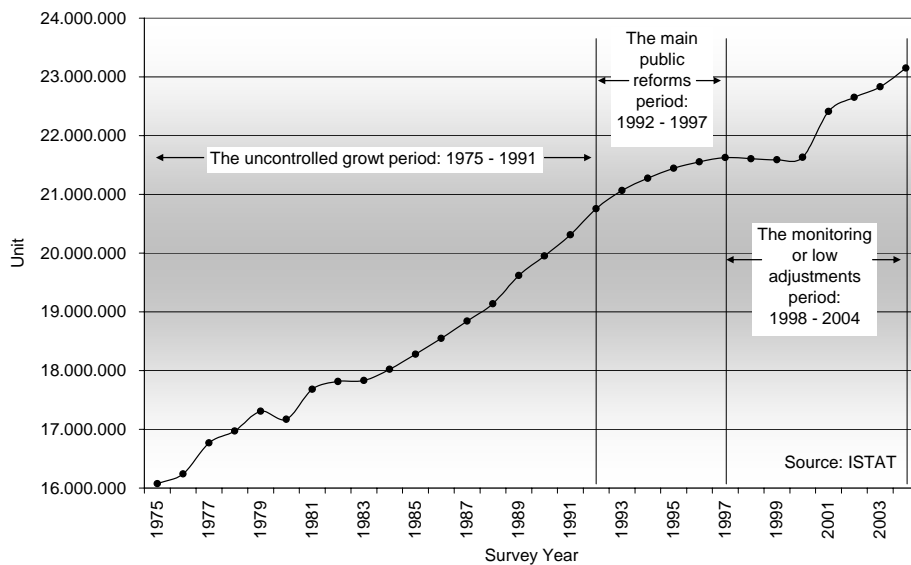


Fig. 1. The dynamics of overall pensions in Italy (1975 - 2004)

As noted in figure 2, the flexible rules system on mandatory retirement age that had characterized the so called “uncontrolled growth period”, had determined that more than 30% of overall retirees in Italy were early retirees - with an age between 40 and 60 years - and moreover, that retirees’ income is bigger for early retirees (Figure 3).

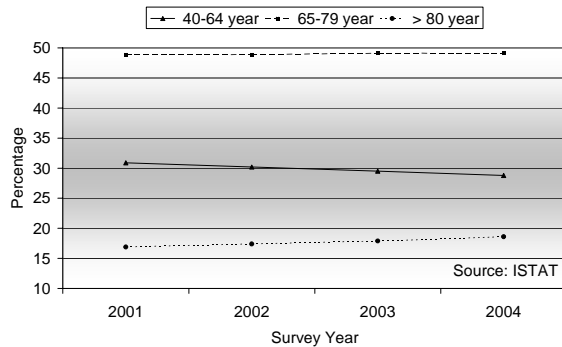


Fig. 2. The dynamics of Italian retirees by age (2001 - 2004)

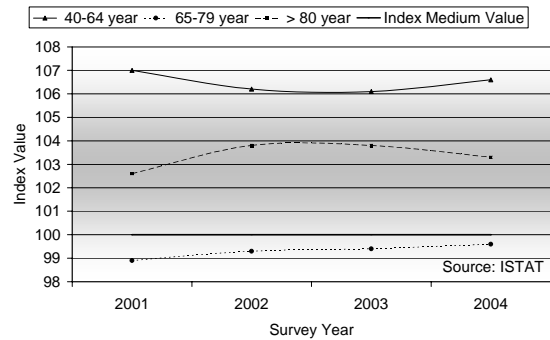


Fig. 3. The dynamics of Italian retirees' income by age (index mean value = 100; 2001 - 2004)

Figure 4 puts into evidence the exponential increase expenses connected to the maintenance of the Italian retirement system. Since 1993 it is also possible to appreciate a slight inversion of tendency in the retirement expenses phenomenon, which seems to abandon their exponential growth pattern.

The phenomenon is represented by a s-shaped curve. The same behaviour is possible to observe respect the variable that represent gross domestic product (GDP)/retirement expenses ratio (figure 5).

As already noted, the number of the pensions don't coincide with that any retirees why much every individual (retiree) can profit more pensions. Table 1 shows the number of retirees by typology and class of age.

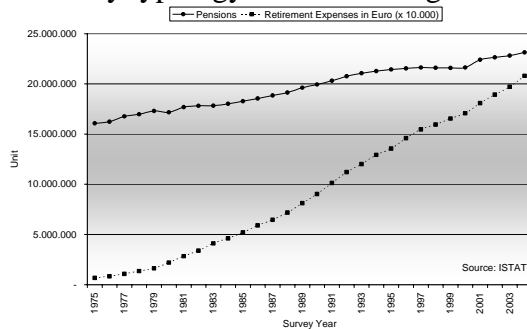


Fig. 4. The dynamics of overall retirement expenses and pensions in Italy (1975 - 2004).

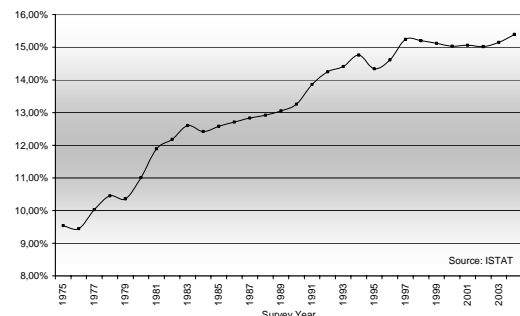


Fig. 5. The dynamics of overall Retirement Expenses - GDP ratio (1975 - 2004).

Table 1. Retirees by typology and class of age (2003). Source: ISTAT

CLASS OF AGE (year)	OSP	REP	INP	ICP	SUP	IVS	IVS + REP	IVS + INP	OTHER	TOTAL
ABSOLUT VALUE										
0-14	-	87.188	1.741	-	43.559	-	806	2.639	51	135.984
15-39	-	230.558	77.713	13.232	81.709	91	23.447	4.988	1.122	432.860
40-64	2.873.817	366.163	228.870	311.134	436.754	195.759	207.470	202.786	11.202	4.833.955
40-55	337.368	221.126	172.386	123.078	195.848	10.584	85.585	35.362	4.076	1.185.413
56-64	2.536.449	145.037	56.484	188.056	240.906	185.175	121.885	167.424	7.126	3.648.542
65-79	4.325.220	459.108	11.004	519.186	644.897	1.114.143	534.060	392.322	32.425	8.032.365
80 -	656.773	138.996	2.764	235.600	354.888	651.946	758.964	93.488	38.518	2.931.937
Totale	7.855.810	1.282.013	322.092	1.079.152	1.561.807	1.961.939	1.524.747	696.223	83.318	16.367.101
PERCENTAGE										
0-14	-	6,8	0,5	-	2,8	-	0,1	0,4	0,1	0,8
15-39	-	18	24,1	1,2	5,2	-	1,5	0,7	1,3	2,6
40-64	36,6	28,6	71,1	28,8	28	10	13,6	29,1	13,4	29,5
40-55	4,3	17,2	53,5	11,4	12,5	0,5	5,6	5,1	4,9	7,2
56-64	32,3	11,3	17,5	17,4	15,4	9,4	8	24	8,6	22,3
65-79	55,1	35,8	3,4	48,1	41,3	56,8	35	56,4	38,9	49,1
80 -	8,4	10,8	0,9	21,8	22,7	33,2	49,8	13,4	46,2	17,9
Totale	100	100	100	100	100	100	100	100	100	100

OSP = Old Age and Seniority Pension; REP = Relief Pensions; INP = Indemnity Pensions; ICP = Invalidity and Civil Invalidity Pension; SUP = Survivors Pension ; IVS = OSP + ICP + SUP.

14. THE RETIREMENT BEHAVIOUR IN ITALY: A SYSTEM DYNAMICS APPROACH

One of the main advantages of System Dynamics approach is to represent in a simple way the cause and effect relationships among the key-variables of the observed social system, and allows formulating, testing and verifying the advantages of systemic solutions (Forrester, 1975; Sterman 2000; Wolstenholme, 2004).

This section focus on the feedback loops of the retirement system, in the attempt to explain the behaviour of the main stocks as retirees and early retirees, retirement expenses and employees that decided to retire.

A feedback analysis of the raising number of pension and retirement expenses (1975 - 1991)

The growing number of retirees and early retirees in Italy in the considered period has been determined by Italian public policies, which have encouraged any form of retirement, through favourable eligibility conditions, very flexible rules on mandatory retirement age and advantageous economic benefits for retirees. Despite this balancing feedback loop that lead the behaviour of retirees and retirement expenses stocks (figure 6), the dynamics of such variables is characterized by an exponential growth of the retirees and the direct and indirect costs connected to the maintenance of the retirees' income.

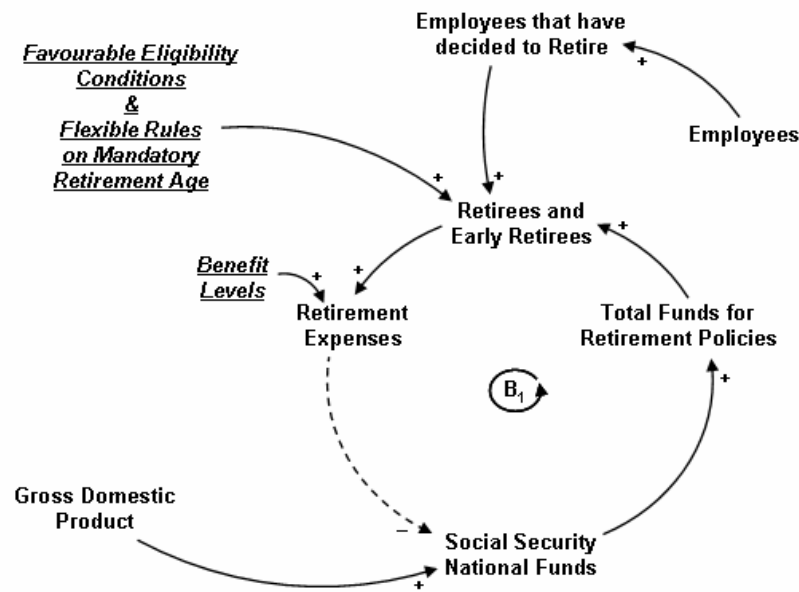


Figure 6. Balancing feedback loop that should lead a retirees and retirement expenses balance with Retirement Oriented Public Policies

As the reinforcing feedback loop show, this behaviour was possible because of the limit to growth for retirees and income's expenses, represent by the financial coverage of Social Security National Funds, have been overcome by unloading the operating deficit on the public deficit (figure 7). In synthesis, the balancing feedback loop was intentionally made inactive because of recourse to the public dept. The reasons of such public policies are to identify in political and social Italian pattern, but this isn't an issue of this study. This circumstance has produced in very few years such a deficit that the Italian government has been forced to a very rapid and abrupt inversion of tendency, in order to guarantee economic-financial sustainability of the national retirement system.

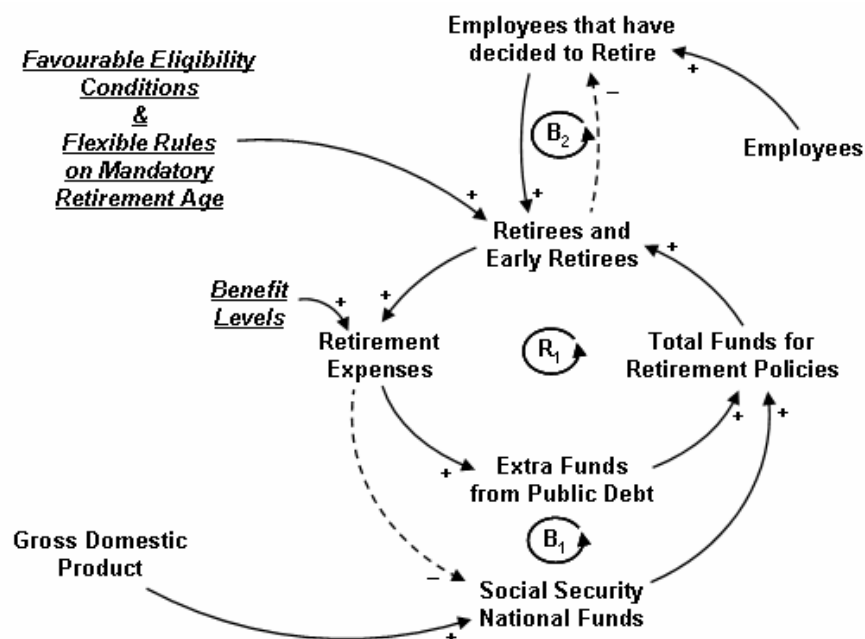


Figure 7. Reinforcing feedback loop that lead to a retirees and retirement expenses growing through Retirement Oriented Public Policies

A feedback analysis of main Public Policies aimed at fighting the raising number of pensions and retirement expenses (1992 - 1997)

As it has already been underlined, from 1992 to 1997 some laws have been promulgated to meaningfully modify the eligibility conditions and the granted economic benefits for new retirees.

Such changes have allowed bringing back retirement expenses within sustainable levels. This is the domain of the so called “intended consequence feedback loop” generated by Public Policies. The intended consequences of a feedback loop refer to a set of predictable effects, consequential to the application of definite policies to manage the dynamics of key-variable of observed social system.

The labour force’s participation public policies were aimed to make the balancing feedback loop (B_1) dominant in comparison to the reinforcing feedback loop (R_1), leading to the containment of retirees and retirement expenses growth (figure 7).

The financial coverage of retirement expenses was entirely guaranteed by social security national funds strictly planned. No recourse to extra funds from public dept was so easily permitted (figure 7).

Unintended consequences of Public Policies aiming to fight the rising number of pensions and retirement expenses (1992 - 2004)

System dynamics approach emphasizes the role of unintended consequences from previous feedback loop (Wolstenholme, 2004). These can seriously compromise the effectiveness of policies in a long-term period. From this point of view, the question is verify if the public policies previously presented may cause some unintended consequences that negatively affect the behaviour of retirement system key-variables, as the number of retirees and the retirement expenses in Italy.

Unintended reinforcing feedback loop that affect employees normative and continuance organizational commitment (R_2)

The matter is if the public policies aiming to foster labour force's participation have solely determined a decrement of the number of retirees and allowed to control the rise of the retirement expenses, or they have also produced unintended results that may show their negative effects on key-variables.

These public policies seem to generate an unintended reinforcing feedback loop (R_2), as depicted in figure 8. This feedback shows that the more the employees decided to retire, the more they perceive a psychological contract breach by their organizations, because of their vested right is denied. Employees that perceive a psychological contract breach reduce the level of their normative and continuance organizational commitment, and this produce an increase of job and organizational variables as push factors, that positively influenced employees in their decision to retire.

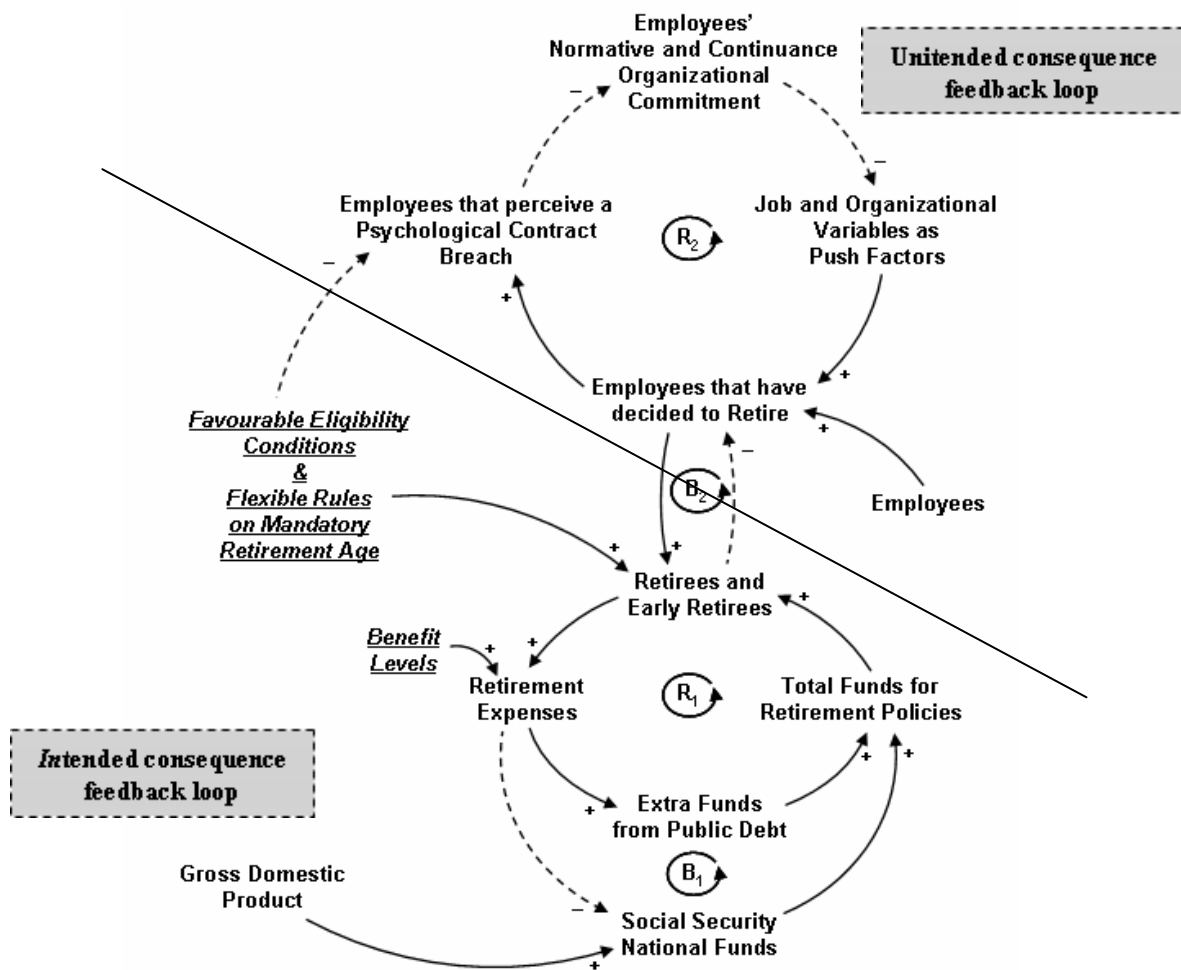


Figure 8. Unintended reinforcing feedback loop (R_2) activated by Labour Force's Participation Public Policies.

This reinforcing loop is constituted by cause and effect relationships between variables which need be validated (Barlas, 1996; Sterman, 2000). In this case, validations process refers to the analysis of the literature about the hypothesised cause and effect relationship. The evidence of the cause and effect relationships validity is determined as follows:

1. Cause and effect relationship between the employees that decides to retire and employees that perceives a psychological contract breach with retirement law changes as mediator variable.

Before discussing this cause and effect relationship, it may be useful to define the concept of “psychological contract”.

One of the most shared definitions interprets psychological contract as the individual's perception of what he/she owes the employer and of what the individual believes that he/she is owed in return (Rousseau, 1989). Morrison and Robinson (1997) affirm that the term psychological contract breach refers “to the emotional and affective state, characterized by disappointment and anger, that sometimes results from the belief that the organization has failed to adequately maintain the psychological contract”. According to this perspective, psychological contract breach refers only to those instances when employees feel betrayed by their organization's failure to live up to the commitments it made to them.

The validity of the hypothesised relationship simply refers to the following issue: the awareness of having lost their own vested rights due the new retirement laws may be lived, by employees that had decided to retire but can't made it, as a psychological contract breach.

For a better understanding this issue, it is possible to adopt the *discrepancy model* for understanding employees' perception of psychological contract breach, elaborated by of Turnley & Feldman (1999).

According to this model, is possible to track three main factors that define when employees perceive psychological contract violation:

- the sources of employees' expectations (F1)
- the specific elements of the psychological contract breach (F2)
- the characteristics of the discrepancy itself (F3)

These three factors are articulated by the authors in twelve different propositions. In table 2 the proposition are listed each one's validity is acknowledged or denied according to its positive or negative influence on the hypothesized relationship.

As it is possible to observe, the propositions that seem to undermine the validity of the hypothesized relationship all refer to the worker's belief that the responsibility for the loss of retirement vested rights is attributed to external factors, outside the organization's control.

	Proposition ¹	Confirm Validity	
		Yes	No
F1	1. Discrepancies arising on commitments made by supervisors or members of top management are more likely to be interpreted as psychological contract violations than discrepancies arising on commitments made by recruiters, human resource specialists, or co-workers.		X
	2. Discrepancies are less likely to be interpreted as a violation of the psychological contract if the commitments that created the obligation were made by a supervisor to whom the employee no longer reports.		X
	3. Discrepancies are more likely to be interpreted as a violation of the psychological contract when they arise on obligations that were conveyed explicitly than when they arise on obligations that were conveyed implicitly. (Morrison & Robinson, 1997).	X	

¹ For bibliographic reference in table, see Turnley & Feldman (1999)

F2	4. Discrepancies on compensation elements (amount of pay, merit pay, and fringe benefits) are more likely to be perceived as psychological contract violations than discrepancies on other elements. (Herriot et al., 1997, Porter, Pearce, Tripoli, & Lewis, 1998)	X	
	5. Discrepancies involving job security are more likely to be perceived as psychological contract violations by older workers than by younger workers. (Leana & Feldman, 1992).	X	
	6. Discrepancies involving training and development opportunities, advancement opportunities, and work challenge are more likely to be perceived as psychological contract violations by younger workers than by older workers.	N.A.	N.A.
F3	7. The greater the magnitude of the discrepancy between promised and actual inducements, the more likely the employee is to perceive the discrepancy as a violation of the psychological contract. Morrison and Robinson (1997) Fiske and Taylor (1984)	X	
	8. The more over-rewarded an employee is on some elements of the psychological contract, the less likely he/she is to perceive being under-reward on other elements as violations of the psychological contract.	X	
	9. The greater the amount of time between when the promise was made and when the discrepancy occurs, the less likely the employee will be to perceive the discrepancy as a violation of the psychological contract.	X	
	10. Employees are more likely to interpret discrepancies as psychological contract violations when they attribute such discrepancies to the organization's unwillingness to keep its promises. (Turnley & Feldman, 1998).		X
	11. Employees are less likely to interpret discrepancies as psychological contract violations when they attribute such discrepancies to honest misunderstandings or to external factors outside the organization's control. (Turnley & Feldman, 1998).		X

Table 2. Discrepancy model propositions that confirm or deny the validity of the hypothesized relationship between the employees that decides to retire and those that perceives a psychological contract breach (from Turnley & Feldman, 1999a).

Nevertheless, the consequences of such retirement contractual redefinition fall back on the relationship between employees and organization. It is reasonable to hypothesize that employees who thought their vested rights inalienable, suddenly feel betrayed without any possibility of contradictory, and so react to such evidence by lowering the degree of commitment to the counterpart: their own organizations. The awareness that the organization is not responsible for the loss of their vested rights implies that employees attribute the responsibility to the "employer system", which (in the case of a contractual redefinition on such an important issue as the retirement) is constituted by both the organization and the public government. In conclusion, the validity of causes and effect relationship between the two variables seems to be confirmed.

2. The cause and effect relationship between the employees that perceives a psychological contract breach and the employees normative and continuance organizational commitment is widely demonstrated by various studies, which accept the lowering of organizational commitment as a frequent employee reaction against psychological contract breach (Guzzo et al, 1994; Robinson et al., 1994; Turnley & Feldman, 1999, 2000).

Turnley & Feldman (1999) note that the relationship between psychological contract breach and workers' reactions is mediated by affectivity. According to a triadic model of organizational commitment (Meyer & Allen, 1991), a weak cause and effect relationship is predictable for workers who express an high level of affective commitment, which is related to emotional personal involvement. Contrarily, the relationship is much stronger when workers express normative or continuance

commitment, which are less related to emotional job attachment, but adhere respectively with a sense of duty and social values, and cost-benefit investment-profit criterion.

3. The cause and effect relationship between lowering elderly labour force normative and continuance commitment and job and organizational variables as “push factors” is self-evident. The very concept of job and organizational variables includes organizational commitment.

4. The cause and effect relationship between job and organizational variables as “push factors” and employees that decides to retire is demonstrated by studies investigating relationships between organizational commitment and turnover or employees’ decision to leave their organization (Meyer & Allen, 1991, 1997; Mowday, 1999; Chang, 1999; Mathieu & Zajac, 1990).

In conclusion, the literature widely confirms the validity of cause and effect relationships between the unintended reinforcing feedback loop (R₁) variables.

Nevertheless, it is possible to assume the presence of a second unintended reinforcing feedback loop, caused by labour force’s participation public policy, discussed in the following section.

Unintended reinforcing feedback loop that affect employees job commitment (R₃)

This second unintended feedback loop shows that the lowering of normative and continuance commitment levels of employees negatively affect the levels of job commitment and, consequently, worsens employees effectiveness and, as consequence, organizational performance. The reduce level of organizational performance may inflate hard blows on Gross Domestic Product (GDP). Because of the amount of Social Security National Funds (SSNF) is related to GDP - in a short-term sustainability of the retirement expenses perspective - low indexes of GDP evidently determine the destination of smaller income to the SSNF (figure 9).

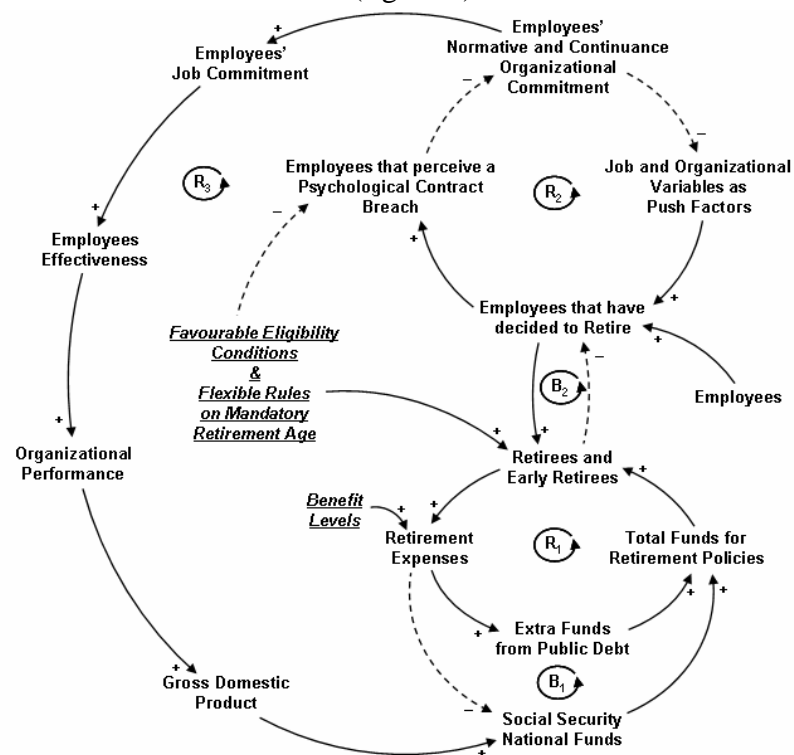


Figure 9. Unintended reinforcing feedback loop (R₃) consequential to Labour Force Participation Public Policies.

Policy design to limit undesired effects of unintended feedback loops R_2 and R_3

Both the first and the second unintended reinforcing feedback loops seem to produce predictable effects, related to employees' organizational and job commitment levels. The lowering organizational commitment of employees triggers a growing intention to retire, whereas their lowering job commitment may cause a worse firm competitiveness, with relevant and well know consequences on the growth of Gross Domestic Product. The present study put on evidence that Labour Force's participation public policies negatively affect the quality of the relationship between the workers, their job and their organization. It is therefore necessary to apply concurrent policies, able to mitigate or even inhibit the negative effects of such traumatic but necessary public policies. In this sense, it's necessary to identify some policies able to contain the undesired effects of the two unintended feedback loops. These policies must affect the central variable of both unintended feedback loops: employees' normative and continuance organizational commitment. Obviously, being employees' normative and continuance organizational commitment an organizational variable, the policies that can influence its may be manage by organizations. At the most, it's imaginable that firm management policies enabled to fighting lowering employees' organizational commitment are partially sponsored by government funding.

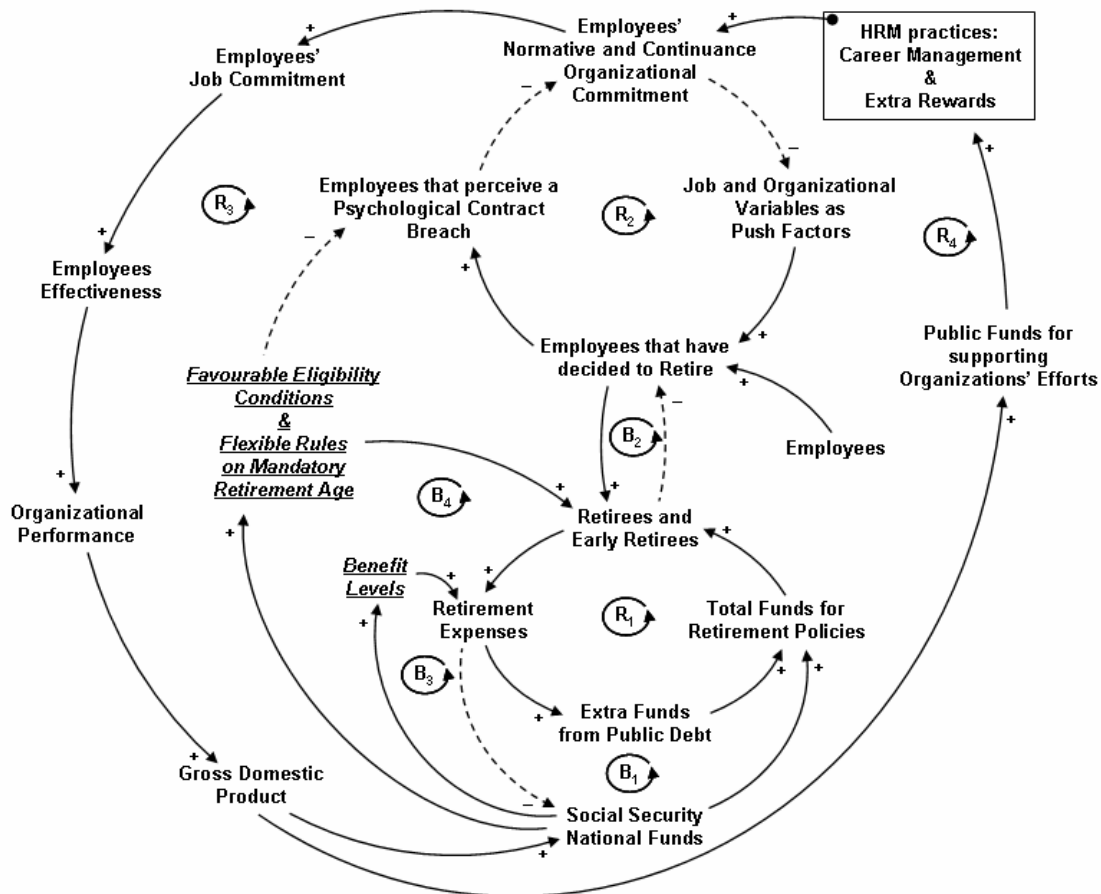


Figure 10. Policy design to limit undesired effects of unintended reinforcing feedback loops (R_2 - R_3)

Career Management policies aiming at fostering organizational commitment through career commitment

Some practices of human resource management (HRM) can be viewed as appropriate policies, for the organizations. Hiltrop (1999) has proposed eleven best HRM practices that organization may utilize to maintain high standards.

Two of the eleven HRM practices, that seem particularly capable of enhancing employees' organizational commitment, are briefly presented (figure 10).

Individuals are attracted toward those organizations that can satisfy personal career needs. This means that the attitudes of individuals toward their career - that is career commitment - may affect their attitudes toward their organization.

For the organization, career management implies planning and implementation of training, informative and diagnostic activities to support the individual's career development process (Arnold, 1997).

While some studies emphasize the role of career commitment as a form of job commitment, other ones underline that career commitment mitigates the effect of organizational commitment on turnover circumstances (Arnold, 1997, Chang, 1999; Driver, 1988).

Therefore, career management may engage adequate HRM contrastive practices against the lowering of organizational commitment, particularly for those workers who base their organizational commitment on sense of duty and social values, and cost-benefit investment-profit criterion. This HRM practice seems very efficacy in contrasting early retirement.

Extra rewards and recognition for high performance to increase organizational commitment

In a recent study, Hiltrop (1999) suggests that one of the most fostering HRM practice to foster organizational commitment is to design tasks and structures able to generate challenging and career enhancing work experiences for workers. This practice encourages a worker's sense of accomplishment, and incites the expression and exploitation of talents (Steers, 1977; Meyers et al., 1989; Hiltrop, 1995). This HRM practice seems efficacious in contrasting both retirement and early retirement.

Furthermore, figure 10 show a linkage between Social Security National Funds and public funds for supporting organizational efforts finalized to enable HRM practice, and between the former and retirement eligibility conditions and benefit levels. While the first linkage may represent a continuous flow, the same can't occur for the second one; in fact, isn't reasonable to imagine a continuous change of retirement eligibility conditions and benefit levels. In this case, it must be hypothesized a discrete flow, which logical function produces a pulse whenever condition evaluates to true.

Analysis of the main stock and flow structure of the system dynamics model

This section presents main stock and flow structure of the system dynamics model, based on the above commented feedback loops. It is used both to better understand the retirement phenomenon and to explore the effectiveness over time of the proposed HRM policies and their relationship with public policies.

As Table 1 shows, the number of retirees aged between 0 - 39 years are only 3.6% of overall retirees. Therefore, the model will consider only retirees between 40 to 100 years old and employees between 40 to 70 years old.

To simplify the model construction, all stock and flow variables, relative to retirees and employees, have been ordered in arrays. To provide simulation outputs, all the elements have been clustered together into four different age classes, as described in table 3. As indicated in table 3, it is possible for a 45 year-old person to be employed or retired, whereas it is impossible for an 84 year-old person to be employed, and consequently is certainly retired. These classes of age are coherent with the ISTAT classes of age.

Elements	Clusters (Class of age)	Work Age	Retirement Age
40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55	40 - 55 years	Possible	Possible
56-57-58-59-60-61-62-63-64	56 - 64 years	Possible	Possible
65-66-67-68-69-70	65 - 70 years	Possible	Possible
71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100	71 - 100 years	Impossible	Certain

Table 3. Array elements, class of age and their relationships with work and retirement age.

The proposed system dynamics model utilizes hierarchical structures of the simulation models powered by Powersim Studio, useful to generate sub-models within the model. The most remarkable advantage is that it is possible to divide the simulation model into smaller sections or sub-model (figure 11). The sub-models relationship is also graphically coherent with the causal loop diagram (CLD) depicted in figure 11, to facilitate the readability of stock and flow model.

This illustration of the stock and flow model may be useful to enhance comprehension of the system structure. The stock and flow sub-model relative to employees that have decided to retire sub-model and retirees and early retirees is depicted in figure 12.

These sub-models show that *employees rate inflow* is affected by *job and organizational variables as push factors*, and *retirees inflow* is affected by *favourable eligibility conditions & flexible rules on mandatory retirement age*.

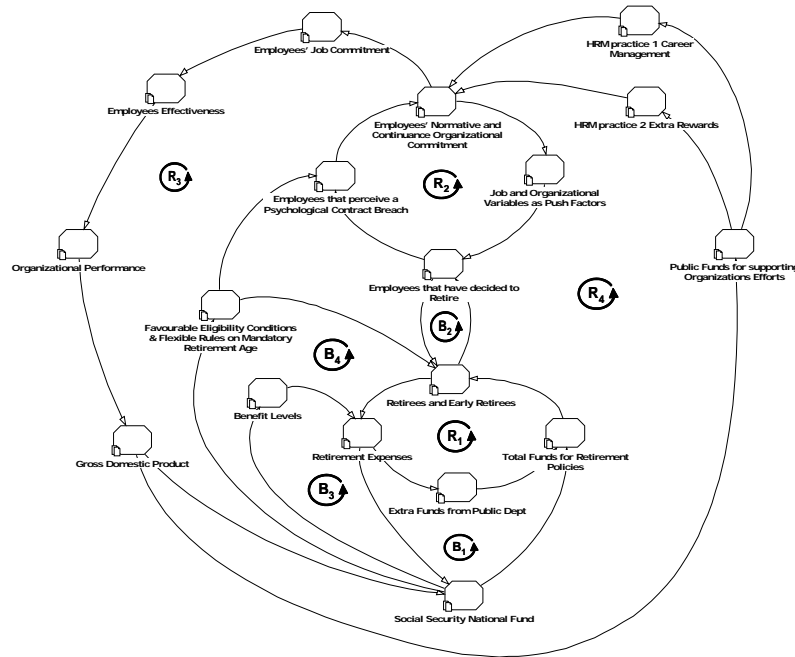


Figure 11. The sub-systems of the system dynamics model.

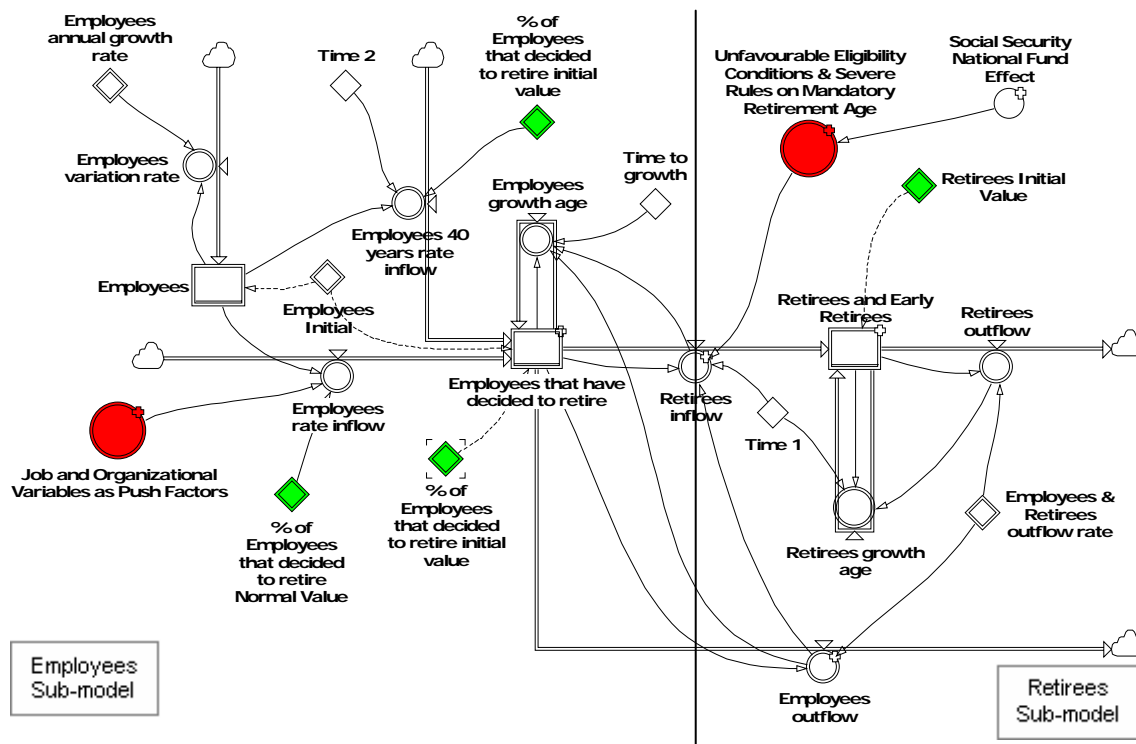


Figure 12. The stock and flow structure related to employees that have decided to retire sub-model and retirees and early retirees sub-models (in this figure the two sub-models are joined, for a better readability).

Queues have been created using arrays, to represent the phenomenon of retirement in aging employees and retirees. The flow is marked by all the elements of delay and the array elements flow into each simulation step (one year). This technical solution allows retaining employees and retirees in their own stock although they are changing their age (one year every timestep).

Scenario Analysis

In order to support the management in overcoming business growth limits with our suggested policies, the system dynamics simulation model has been used to analyse different scenarios.

In particular, career management and extra reward policies have been hypothesised according to three possible degrees: low, medium and high.

The simulation run covers a time span of 16 years: from 1994 and to 2010.

The following figures show model key-variables behaviours related to the actual public policies undertaken by the Italian government, and the key-variables behaviours related to the effect of the two human resource management (HRM) policies considered and activated by the organizations themselves: career management and extra reward and recognition for high performance. The analysis of model key-variables dynamics, traced in the reference (base) run provides satisfactory results (similar to data provided by the ISTAT). As a consequence, the SD model has been used to assess the effectiveness of two alternative scenarios.

The first scenario (reference or base run) is based on the absence of HRM policies.

The second scenario (current run) is based on the decision to activate career management and extra reward and recognition for high performance policies by organizations. In the second scenario, the suggested policies have been implemented since January 2005.

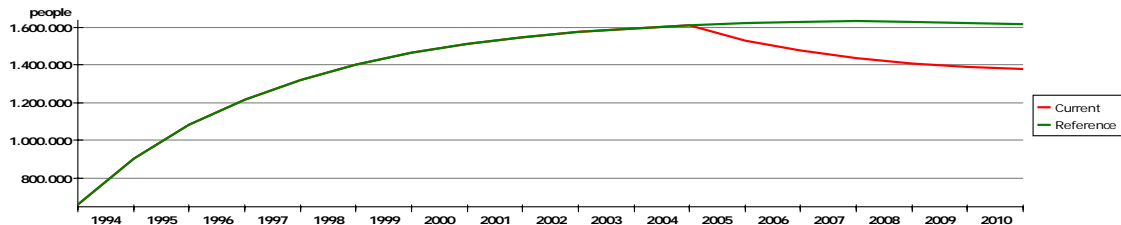


Fig 13. Current and reference scenarios of overall employees that have decided to retire

Figures 13-14-15 show that HRM policies adopted by organizations are able to reduce significantly the number of overall employees who decide to retire, the number of overall retirees and, as desired, the number of early retirees (40 - 54 years old).

Figure 16 shows that the HRM policies have in the long run a positive effect even on Gross Domestic Product-Retirement Expenses ratio.

To lower the Gross Domestic Product-Retirement Expenses ratio, it may be interesting to observe the effects of the third possible policy: the governments' decision of lowering benefit levels. This is a typical public policy. It was applied by governments from 1993 to 2005 and constitutes in reference behaviour a constant variable.

In the next scenario session, this variable is considered as an independent variable able to affect the variations in Gross Domestic Product-Retirement Expenses ratio, as shown in figure 17.

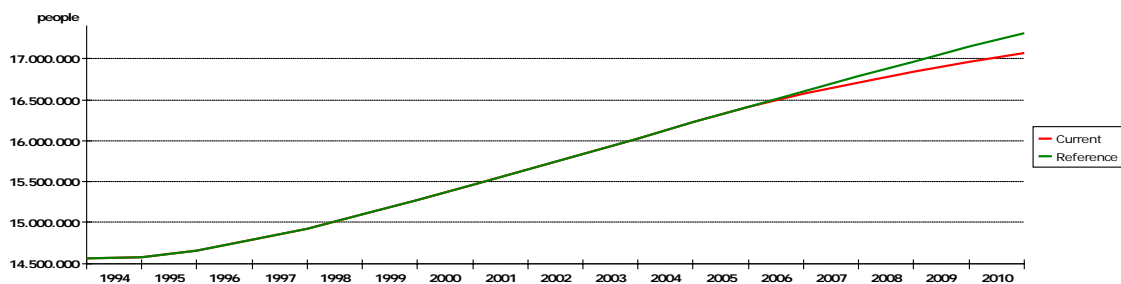


Fig 14. Current and reference scenarios of overall retirees

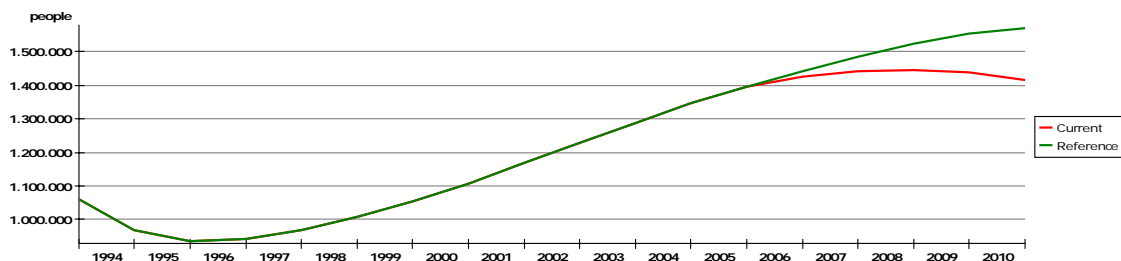


Fig 15. Current and reference scenarios of 40 - 54 years old retirees

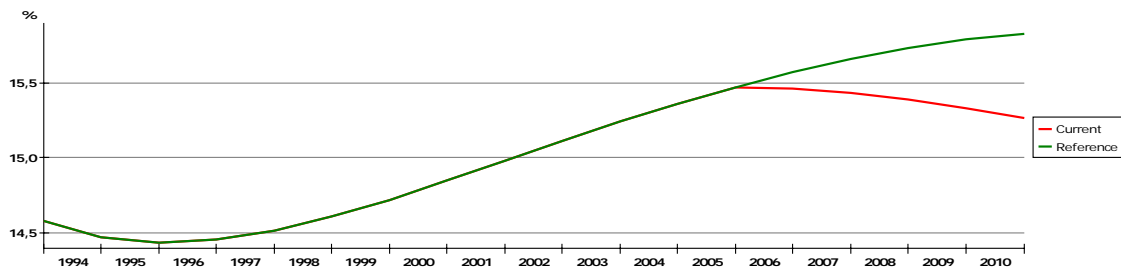


Fig 16. Current and reference scenarios of Gross Domestic Product-Retirement Expenses ratio.

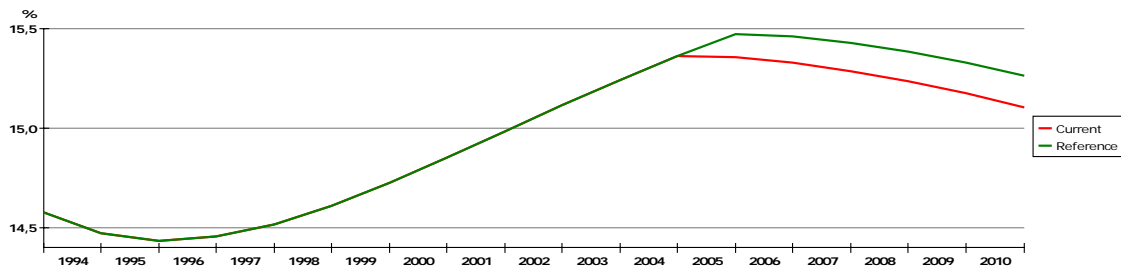


Fig 17. Current and reference scenarios of Gross Domestic Product-Retirement Expenses ratio.

In both scenarios, the suggested policies have been implemented since January 2005. The first (reference run) is based on the decision to activate career management and extra reward and recognition for high performance policies by organizations. The second (current run) is based not only on the decision to activate career management and extra reward and recognition for high performance policies by organizations, but also on the governments' decision of lowering benefits levels. As the figure shows, the governments' decision of lowering benefit levels bring back the ratio value at the level (14,98%) recorded in the year 2001.

15. CONCLUSIONS AND FURTHER ANALYSIS

The simulation results show that HRM policies at an organizational level of analysis may be very effective to enhance normative and continuance organizational commitment and, in time, reduce the number of employees that decide to retire and the number of retirees.

Furthermore, the considered HRM policies together with public policies based on lowering benefit levels seem to have a powerful effect on Gross Domestic Product-Retirement Expenses ratio reduction.

An important feedback from the result of this simulation is that preferences for early retirement must not be underestimated. The simulations show that low benefit levels do not keep elderly people from early retirement. People generally prefer to retire as soon as they reasonably can.

Because of their negative effect on normative and continuance organizational commitment, public policies tending to draw on benefit and pension programmes, could become less effective in the long-term period and may cause unsatisfactory retirement experience.

As underlined by [Wolstenholme \(2004\)](#), this system dynamics model shows the disadvantages of adopting non-systemic solutions to complex issues. This study, even if it's a first step in the process to contemplate more variables, confirm that system archetypes are fundamental to enhance learning process.

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