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Population Ageing and the Welfare State: the Italian Case.

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To my parents for their never-ending support.

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Chapter I: Introduction

I. Why study population ageing

The world is ageing. Global demographic ageing was included by the United Nations among the three main global challenges of the 21st century, beside global climate change and global terrorism (Hoff, 2011). According to the definition of population ageing given by the WHO (2010), "The ageing of the world's populations is the result of the continued decline in fertility rates and increased life expectancy. This demographic change has resulted in increasing numbers and proportions of people who are over 60. As a result, the first time in history when there will be more older people than younger people is rapidly approaching". In addition to this definition of population ageing, it is worth noting that migration may significantly alter a country's demography and slow down or accelerate national or regional demographic transition.

The demographic transition that leads to population ageing is a universal phenomenon recorded worldwide, even though it varies greatly across countries and regions in timing and speed (UN 2017). As nations develop, they experience a demographic transition, the population age distribution changes as first mortality and secondly fertility drops. The long-term decline in mortality and fertility rates implies that different age cohorts of the population are different in dimensions. "If a lower level of fertility is maintained over many decades, the numbers of children, youth and working-age adults all decline as a proportion of the total, while the number and the proportion of older persons continues to rise" (UN 2017, p. 2).

Population ageing is at a more advanced stage in some countries, such as in most countries of Europe, Japan and, to a lesser extent, in Australia, Canada, New Zealand and the USA. Asia, Latin America and the Caribbean have recently experienced a rapid fertility reduction and their populations are expected to age more rapidly than other developed countries. On the other hand, sub-Saharan African continues to register higher-than-predicted levels of fertility rates. For instance, UN predictions issued in 2008 expected the population of Nigeria to peak at 289 million in 2050, whereas UN 2010 predictions raised the expected Nigerian population to 390 million by 2050. Finally, in 2018 the UN predicted that 410 million people would inhabit Nigeria in 2050 (Golini and Lo Prete, 2019, p. 45). Because of the diverse regional trends in ageing, Africa's share of the worldwide children population is predicted to increase from 25% in 2015 to 38% in 2050, whereas Africa's share of the working-age population is expected to double from 12% in 2015 to 23% in 2050 (UN 2017, pp. 7-8). In

contrast, in all other regions, the share of children and the working-age population will decrease as compared to the rest of the world by 2050.

The ageing of the population *per se* is not universally recognized as detrimental for the economy (Rauhut 2012; Bloom et al. 2015; Rechel et al. 2009; Fahy e al. 2011). Nevertheless, an older population might be a serious threat to the financial stability of states already coping with high levels of public debt. In many states the dramatic short-term effects of the Great Depression in 2008 and the following 2010 sovereign debt crisis (Le Cacheux, 2018) happen together with the long-term effects of population ageing. For instance, European states of the "Southern Block" experience a high economic pressure because of the need to pay high public debt interest, along with the increased financial pressure put on welfare due to the increasing elderly population. As the 2009 EU Sustainability Report puts it, "Most countries have sustainability gaps as a result of both an unfavourable starting position for the public finances and due to the projected increase in the cost of ageing" (European Commission 2009, p.33).

When population ageing occurs the financial stability of the welfare state is at stake (Andersen et al. 2007, cited in Rauhut 2012). Population ageing increases public spending in two ways, by increasing firstly the number of people that are entitled to pensions and secondly the costs of healthcare and long-term care. As more and more people claim a pension scheme, the actively working population shrinks and so do tax receipts that largely depend on income tax. Consequently, states whose welfare spending is more heavily concentrated on old age welfare are particularly financially unstable in the long run. Old age welfare acts like a redistributive force that takes from active workers and gives to retirees for old age security. Since its inception, the goal of the welfare state has been to mitigate the dependency of citizens from the market and their family role (Flora 1986). However, with time, the needs of society evolve. The fragmentation and unpredictability of work, the decline of trade unions (O'Caroll 2015) and population ageing have brought to light new classes of people in need of state support; these new groups are young adults and single parents in developed states, particularly in the so-called "periphery of Europe" (Palier, Rovny & Rovny 2018).

The future of a national community is determined by the wellbeing of its members of all ages. Family, community ties and the welfare state's redistributive nature link generations and their wellbeing. Studying population ageing and its consequences for the welfare state is key to understand a slow but relentless socioeconomic change that will shape economic (Visco 2005), political and cultural behaviours. As the American financial journalist Morgal Housel (2016) puts it, "Here's an iron rule in economics: growth = (change in number of people) + (people getting better at doing stuff)". If the

sum of these two addends in not growing in the long term, what else should we worry about?

II. This thesis

This thesis aims at shedding some light on population ageing and its consequences for the welfare state and national economies. Chapter II and chapter III consider the effect ageing has on different pensions and healthcare systems respectively. Pensions and healthcare are the two items of expenditure in public budgets most affected by population ageing, followed by long-term care welfare. Different developed countries respond to the need for old age security by establishing and regulating different combinations of private and public welfare.

Chapter II and chapter III demonstrate three characteristics of the welfare-ageing relationship. First, the wellbeing of one generation is tied to the wellbeing of the others in the long term through the welfare state's wealth redistributive mechanism. Second, the privatization of old age welfare is not the most cost-effective option to solve the welfare state's long-term sustainability problem caused by population ageing. Rather, policies aimed at increasing employment rates and productivity are the only viable options. In particular, investing public money in family and education policies aimed at increasing natality, youth employment and women employment are all viable options for long-term welfare sustainability. Third, population ageing has economic, political and cultural consequences. Therefore, any welfare reform proposed must not only be economically convenient but also politically viable in order for it to be feasible.

Finally, Chapter IV tests the consequences of advanced population ageing on the welfare state in practice by looking at the economic and societal transformations taking place in Italy, the second-oldest national community in the world. This chapter looks at inequalities and unfairness created by the combination of institutional myopia, the 2010 sovereign debt crisis and population ageing in Italy.

III. Methodology

Chapter II and III re-propose pension and healthcare systems classifications used by some researchers. Specifically, chapter II distinguishes pension systems according to Sergio Nisticò's (2019) four archetypal pension systems (namely the NDB, FDC, FDB and NDC system) outlined in his book *Essentials of Pension Economics*. Chapter III's various types of healthcare systems are based on Bruno Palier's research on the "healthcare policy quadrilemma" (2010). These chapters have been enriched by further existing research highlighting the advantages and disadvantages of privatizing old age social security; as well as testing the political viability for policy reform in these fields of

social security. In addition, chapter III relies on data from different researchers and international organizations to compare health results and healthcare costs of different healthcare systems in developed countries (paragraph II.V.).

Chapter IV elaborates data provided by Italian institutions (Istat, the Italian Parliamentary Budget Office, the Italian Ministry of Economics and Finance, the Bank of Italy), EU institutions (Eurostat, the European Commission), the OECD and independent researchers and journalists. This data is used to assess the extent to which population ageing has increased public spending, hindered economic growth and impeded policy reforms in Italy. The data and insights reported by Antonio Golini and Marco Valerio Lo Prete in their book *Italiani poca gente* (Luiss University Press, 2019) have greatly helped in the writing of this thesis.

Chapter II: public pension spending and population ageing

I. Introduction

As the population is ageing so are welfare costs. Two items of expenditure are at risk of rapidly increasing as ageing takes place, i.e. pension costs and healthcare expenditure. This is particularly alarming for developed, high-income, OECD countries where the demographic transition that stems from industrialization is advanced and the dependency ratio is high and increasing. Yet, also in developing countries in Asia and Latin America ageing is much faster today then what it was in more developed countries in their earlier stages of their demographic transition because of better medical knowledge and faster declining fertility rates (World Bank, 1994).

It is a fact of life that as men and women age their productivity eventually declines and their need for care and propensity to require medical assistance increases. Therefore, many workers in their working life decide to save some their income to buy old age insurance for future consumption necessities. In order to do so, a part of net national income has to be taken from the production outcome of the actively working generation for the consumption necessities of non-working retirees. Workers' contributions pay for the different types of pension and healthcare arrangements, public and private. As population ages, those in need for a slice of national pie while not contributing to produce it increase, and at the same time producers of income decrease. The only solution seems therefore to increase the size of national income by investing in the necessary tools to boost productivity.

This chapter will focus on pensions. Pensions are income annuities granted by the current active workers to those members of the national community that are visibly less productive or even not

productive anymore. The management of these transfers may be organized by the state or by private managers through pension funds. Where pension or healthcare costs are not managed by the state, their burden is on voluntary savings and family support. A distinction must be made between pensions based on contributions and pensions based on solidarity and traditional gender-roles. In the latter case, the welfare state of many developed and faster-developing countries redistributes wealth to the old either because they were too poor to invest enough money on their future pension and healthcare needs, and now live in poverty, or because their traditional gender role did not allow or advise work for some members of the community. Traditionally, women have been pushed into unpaid and socially unrecognized domestic work and therefore their wealth also in welfare benefits depends on men's income and wealth production (Lewis 1992). The cost of these pensions solely based on solidarity may be paid for by the whole of the population or by active workers.

This chapter is an excursus on different pension systems and their relevance on a nation's macroeconomic spending and perspectives. The focus of my theoretical research will only revolve around the pension management that collects contributions from active workers and pays out pensions to retirees. Pensions based solely on solidarity and gender roles are not included in view of the fact that they are made with anti-poverty criteria and can be financed by any arrangement planned by general national budgets' accounts. On the other hand, pension schemes as understood in this chapter are founded on active workers' contributions.

This chapter is organized as follows. I will first give some history on the arrangements of the first pension systems. In the second part I will distinguish some of the most common pension systems and their characteristics. Next, I will introduce the measure of the internal rate of return on contributions to old-age security in order to evaluate the "fairness" of different pension schemes. The IRR depends on both the demographic and the population dividend. In the fourth part, I take a closer look at public pension NDB and NDC schemes. Whereas, in the fifth part the most common private pension scheme, the FDC, will be considered, as well as some consequences of relying on the market for social security. In the following paragraph, I will assess the problem of ageing for all pension systems, proving that there is no easy escape from the slow-down in productivity resulting from population ageing. Finally, I will assess some possible solutions to ageing and the political obstacles in the way of pension reform.

II. Some history on pensions

The idea of a public old-age insurance plan dates back to the enlightened thinkers of the late eighteen

century, and in particular Condorcet (1795). Yet, it was the Prussian Chancellor Otto von Bismarck that instituted the first compulsory public pension system in 1889 (Nisticò 2019). Bismarck in 1889 adopted compulsory insurance for invalidity and old age. This extended welfare provisions that had been already introduced a few years before (1881) for work accidents and sickness. Germany's Emperor, William the First, was one of the main promoters for welfare reform in Germany for solidarity reasons. Instead, Bismarck's reasons to support the institutionalization of welfare provisions were more down-to-earth. On the one hand, the Prussian chancellor attempted to maximize the German economic efficiency by pushing out of the labour force its least productive members. On the other hand, Bismarck, while convincedly right-wing, cleverly drained the growing German socialist movement of one of its ground-breaking claims (SSA History Archives 2020).

The Bismarckian model awards old age pensions financed by contributions made by both workers and employers. Pensions and contributions are based on individual earnings. This earnings-related principle first instituted in 1889 later influenced public pension systems around Europe, as well as the Social Security Act of 1935 fostered by President Roosevelt in the United States as part of his New Deal. Yet, it is worth noting that in Bismarck's original plan the retirement age was set at 70 while the average life expectancy of a German man at the time was around 72 years, but it is easy to imagine that the men of the German industrial working class benefitted of a much lower life expectancy. Therefore, in the words of Hüfner (2003), "a German employee would work his entire life and — near the end — would enjoy a relatively brief "sunset of life," financed by the solidarity of all workers". Nowadays, earning-related pension plans are set to a great extent earlier than life expectancy. In OECD countries the retirement age is set at 65 while life expectancy exceeds 79 years on average. Therefore, retirees under current Birmarckian earning-related pension systems require a great number of pension annuities provided by the solidarity of the actively working class.

The UK used a different approach in the institutionalization of pensions, known as Beveridgean. The National Insurance Act of 1946 was largely inspired by the Beveridge Report (1942), written by the economist and civil servant William Beveridge in the midst of World War II. Beveridge advocates the state's intervention against the "five giants in the road of reconstruction": "Want, Disease, Ignorance, Squalor and Idleness" (p. 6). Following the Report's requests the British National Insurance (NI, that included pension contributions and payments) social security scheme was introduced as well as the National Health Service. The NI introduced the Basic State Pension in the UK, its aim was to extinguish poverty.

As opposed to the Birmarckian earnings-related model, the Beveridgean welfare system does not aim

at consumption smoothing, viz. to encourage people to maintain the same level of consumption as retirees that they could afford as workers. On the contrary, Beveridgean pension systems are designed to prevent poverty. In the words of William Beveridge, "the State in organising security should not stifle incentive, opportunity, responsibility; in establishing a national minimum, it should leave room and encouragement for voluntary action by each individual to provide more than that minimum" (Beveridge 1942, pp. 6–7).

As this first division between the Bismarckian and Beveridgean pension system illustrate, protection against poverty during old age can be assessed in many ways according to the specific aim the welfare plan is trying to achieve. For instance, a third aim a pension system may aim to achieve is redistributive (Barr 2006, cited in Nisticò 2019). Many states award redistributive pensions to their armed forces, civil servants, and women or workers employed in particular industries. In addition, the complexity of the pension system often hides inter and intra-generational redistribution. Nisticò (2019) shed light on some further differences used in pension management.

III. Four Archetypal Pension Systems

In his pivotal book 'Essentials of pension economics' (2019) Sergio Nisticò describes "Four Archetypal Pension Systems" (p.45) focusing on the conditions for old-age pension systems to be financially solvent and the extent to which they achieve redistribution. In doing so he outlines the rationale for adopting different pension management schemes based on their Internal Rate of Return (IRR) rather than on the aims of pension systems. As workers foresee the need for a pension annuity in the future, they invest part of their output while active in the work force. The rate of return of this investment workers receive as pension annuities is determined by two factors.

Firstly, a pension system may be Fully Funded (FF) or financed by a Pay-as-you-go (PAYG) scheme. In FF pension schemes each generation of workers pays for their pension separately through a fund then used when the workers of that age cohort retire. The fund's stored capital is invested in the market and lent in exchange for the financial market's rate of return. The fund gains assets through worker's contributions and interest payments. On the other hand, PAYG pension schemes are based on the intragenerational agreement between all active workers. Workers of all age pay each year contributions to pay for that year's pensions for all age retirees. Therefore, an arrangement if found by which no money is left in the pension fund at the end of the capital transfer each year. In both systems careful management is required for the system to be solvent and "fair", meaning to guarantee to all workers of different generations, career-patterns and wealth the same IRR on their contributions.

Secondly, pensions may be awarded according to Defined Benefits (DB) plans or Defined Contribution (DC) plans. In DB plans, each worker reaching retirement age is insured an annuity computed according to a flat rate (Beveridgean logic) or earnings-related (Bismarckian logic). The fixed pension annuity is then index adjusted for the cost of living. Instead, in DC plans each worker has a personal account and pension annuities are computed according to the contributions she or he has made to her or his personal account. Therefore, each worker has a greater flexibility in choosing when to retire since he or she may decide to retire a few years earlier or later then the advised retirement age and receive a lower or higher pension according to their personal account's deposits. The IRR in these plans may change according to other variables such as long service or earning bonuses and redistributive plans.

The four archetypal pension systems are a mix of the two above-mentioned factors that influence contribution and annuities of pension schemes. First, the non-financial defined benefits (NDB) systems are financed through PAYG schemes while awarding DB earnings-related pension benefits. This combination is typical of compulsory public schemes. Second, the financial defined contribution (FDC) systems are Fully Funded schemes relying on DC contribution-related plans. This is the typical arrangement of countries relying on private supplementary pension plans based on voluntary savings. Third, the financial defined benefit (FDB) systems are FF schemes relying on a set contribution rate to remain fully funded. Finally, non-financial defined contribution (NDC) systems adopt PAYG financing schemes while relying on personal accounts to determine pension annuities. The implantation of personal accounts (a characteristic of countries relying on private FF pension funds) in the PAYG financing schemes has been adopted in European public pension reforms. Italy, Sweden, Latvia, Poland and Norway adopted NDC systems to ensure the financial stability of the national social security system.

IV. The IRR

The IRR of different pension schemes is the measure of their average investment returns on worker's contributions. This is the amount of income gained by a worker from investment in the pension scheme. Workers in all pension schemes contribute to their pension fund by subtracting a part of their net income through taxes or voluntary contributions. Active workers accept to give up a part of their wage because by doing so they buy an insurance on old age to face their future consumption needs when their working capacity will possibly fade. The IRR computes the profitability of investing different amounts of income in different pension schemes that act like old age insurance schemes.

Pensions' management is crucial for the well-functioning of old age insurance. Pension managers in all systems have to balance out each year contributions and pension annuities. In public PAYG systems, each year the active working generation pays taxes to ensure pension annuities to current retirees, consequently no capital is stored in the public pension fund that is merely a channel of capital transfers from workers to retirees. Instead in private systems, contributions for each generation are stockpiled in a pension fund and that money is then invested in the financial market, by doing so pension managers hope to generate a return on stocks and bonds they buy that will require less contributions to be invested by individual workers. The rate of return of stocks and bonds, and so the pension schemes' IRR, depends on fluctuating market interest rates.

Nisticò (2019) computes the exact IRR of NDB systems by referring to the Samuelson-Aaron theorem. He explains the theorem using the following statement valid for all age cohorts: "The IRR awarded to any cohort of workers by a PAYG–DB (NDB) system that charges the equilibrium contribution rate equals the growth rate of aggregate earnings obtained by compounding the growth rates of individual earnings and employment" (p. 52).

In pension economics, the Samuelson-Aaron theorem compounds all the information above in one single formula valid for one and each cohort of workers:

$$IRR^{*}_{\{t\to t+1\}} = (1 + g_w) \times (1 + g_L) - 1$$

According to this theorem, the rate of return on NDB pension schemes (and pensions as a whole, as I will point out later on) depends on two factors. First, the so-called 'demographic dividend', i.e. "the economic growth which - from an accounting point of view - results from the increase in the share of working-age population and in particular from the increase in the supply of work by quantity and quality" (Golini & Lo Prete 2019, pp. 101-102). Second, from the 'productivity' or 'efficiency dividend' that is contingent on the amount of resources and workers used to achieve the same level of output. Workers' earnings increase when productivity increases because workers revise their expectations on wages according to their productivity potential. Revised workers' expectations match exactly firms' cut in production costs that result from efficiency gains (although evidence suggests this may happen only in the medium-to-long run) (Blanchard 2013).

When productivity increases workers expectations on higher wages are met favourably by firms because due to the same productivity increase firms can cut production costs and increase wages, therefore the natural rate of unemployment in the medium-to-long run remains unchanged when

productivity changes. Investment in productivity increases output and wages without increasing prices. Efficiency or productivity gains are achieved for instance by the rationalization of work or by new machinery and products developed through research and development (R&D). The demographic dividend is forecasted to decrease but the productivity dividend might not, and investment in productivity may increase wages in the long run and counterbalance the pressure put on public finances by population ageing.

The following part of this chapter will argue that the growth rate of aggregate earnings obtained by compounding the growth rates of individual earnings and employment is a fundamental component in both the rate of return of public pension schemes and private pension funds. In other words, as the demographic dividend and the productivity dividend change in an economy, its pension spending (and its welfare spending as a whole) is influenced either directly due to a decrease in contributions in public systems, or indirectly because of the effects ageing has on market interest rates and private pension funds, respectively.

V. Public pension schemes

V.I. The non-financial defined benefits (NDB) schemes.

After World War II, when compulsory pension schemes were developed and put in place throughout all Europe, public NDB pension systems seemed like the best option for the cohort of active workers of the time (active workers were also by far the most numerous voters of liberal democracies after WWII). In these systems, workers each year are forced to give away part of their wages to pay for pensions for the current generation of retirees, so that in all time contributions equal pension expenditure. Furthermore, when awarded pensions are calculated as a percentage of earnings that worker received when active, generally the highest salaries of a worker's career are used to compute pensions (the highest salaries also generally happen to be those awarded later in life because of old workers' higher expertise).

Why were these systems put in place after World War II? According to Boldrin and Rustichini (2000) there are two main reasons. First, the Social Security Systems (SSS) of the time took advantage of the intergenerational transfers possible with a large young population. When pension systems around the developed world were designed wages was steadily increasing as well as the world population in all macro-regions. The pension systems were made to exploit the fact that the growth rate of active workers and of wages guaranteed a high IRR for future workers, higher than capital investment in the free market. In other words, when the first pension systems were developed and millions of pensioners

were given the social right to old age security, countries benefited heavily from the so-called 'demographic dividend'.

Second, forced PAYG systems made workers collectively price-setters of the IRR. In compulsory public pension systems in the liberal democracies of the time workers were also the main cohort of voters. Through their vote they could act as "collective monopolists" in elections and demand IRRs that may be higher than what an individual may gain from the market. Through voting, workers may also decide to rule out excesses in pension rules and bargain the most profitable IRR for their contributions.

V.II. The non-financial defined contribution (NDC) schemes.

In the NDC system each worker is awarded a pension according to the contributions he or she made to their personal account. Contributions to individual personal accounts are flexible depending on workers' preferences. Furthermore, the retirement age set by the government is flexible allowing retirees to increase their personal accounts, and therefore their pension annuities, for a number of years. PAYG financing imposes that workers' mandatory contribution be directly disbursed to retirees, so that no pension assets are accumulated each year. Pension annuities are grounded on workers' contributions to their personal accounts. Yet, if the growth rate of aggregate earnings is not constant, the pay out of NDC pensions will have to change because in all public PAYG systems no significant pension assets are stored each year. Hence, switching to a DC plan does not guarantee that pensions will be fairly based on contributions, instead in public DC plans workers' contribution are one of the criteria for awarding pensions, others being financial solvency of the pension scheme and, possibly, solidarity.

NDC systems are preferable to NDBs for two main reasons. To begin with, mixing DC plans and PAYG financing creates a system wherein pension annuities are easier to calculate because more predictable. By looking at the growth of personal accounts, policy makers can predict future government spending and adjust taxes and contributions accordingly. This allows for automatic mechanisms of adjustment to be put in place in order to mechanically increase contributions or the retirement age if population ages. Instead, NDB systems are unpredictable because they are based on workers' latest wages, and thus for financial solvency they require the amount of contributions to be discussed each year by politicians, making the adjustment process to population ageing long and tortuous. Second, NDC systems are "fairer" because they guarantee a more equal IRR than the NDB. In defined benefits plans workers with short and fast-growing careers, benefit from the earnings-

related pension system, and so do high-income workers. NDC grants fairer return on contributions of low-income workers with steady careers.

V.III. Critics to public pension systems

Population is ageing and therefore the cost public social security is becoming huge. In these systems the IRR on pension contributions can remain constant in time only if the growth rate of aggregate earnings, obtained by compounding the growth rates of individual earnings and employment, remains constant. The growing number of predicted retirees is alarming for public pension arrangements of many developed and developing countries because of the pression these people will put on public deficits and because of raising taxes active workers will pay, while the increase in wages is frequently insufficient to maintain a beneficial or stable intergenerational IRR (Mosca 2009).

According to Feldstein (1998), PAYG financial schemes are detrimental for the economy for three reasons. Demographically speaking, PAYG systems are unfair in intergenerational redistribution, as contributions asked as a percentage of labour rise, those now retired payed much less for their pensions than those who are now paying contributions. Second, the IRR workers receive in today's PAYG systems are much lower than what they would receive as interest payments if those workers had lent their contributions in the financial market through a pension fund. Second, PAYG systems require a huge public management machine and these are seldom efficient. Finally, high compulsory taxation distorts the labour market because it reduces labour supply elasticity and it induces active workers to retire as soon as possible in order to spare themselves a lower-yielding pension program (low-yielding PAYG systems are inevitable when population ages and productivity is stagnant).

A solution to guarantee fair intra and intergenerational NDC schemes is to wisely accumulate a buffer fund during the periods of high growth of the demographic and production dividend. "It was precisely with the aim of reducing intergenerational unfairness that many public, earnings-related PAYG systems have wisely accumulated a buffer fund during the periods of very high growth in earnings (essentially after the Second World War and until the 1970s), i.e. they charged the (at that time) high number of contributors a contribution rate higher than that sufficient to raise the revenues needed to disburse the defined pension benefit to the (at that time) low number of retirees" (Nisticò 2019, p. 108). For instance, Sweden guaranteed equal IRRs for different age cohorts in its NDC system by using a buffer that is now being exhausted. However, the unpredictability of fertility, productivity and unemployment rates makes it difficult to foresee the necessity for a buffer fund.

VI. Private pension funds

VI.I. The financial defined contribution (FDC) schemes

In FDC privatized systems, workers of one generation stockpile a pension fund. Each worker has a personal account and may freely decide how much to stockpile in its account and when, hence contributions each year are voluntary. The pension fund matures assets not only because of the contributions workers' pay each year, but also because of the rate of return of capital transfers in stocks and bonds. The system is run by a private manager who has the very delicate job to predict the financial market's rate of return and the consequent contribution each worker will have to pay for a particular pension annuity indexed for the future consumption needs. When a new generation starts its pension fund, for the private pension manager it is more convenient to maintain the same market rate of return generated by the retired generation's pension assets and to transfer current contributions workers make directly to the current generation of retirees. This intergenerational method also makes it easier to have pensions correctly indexed with the present consumption needs.

If the IRR generated by the investment in the financial market remains constant, the pension fund increases (and so does the market's rate of return) when new contributions made by the current generation of workers are higher. Assuming constant market interest rates, the pension fund (and the pension system's IRR) increases when the work force and wages grow (Nisticò 2019, p. 56). Therefore, in FDC pension systems some mechanisms of the Samuelson-Aaron theorem are present, although these are diluted by the fluctuation of stock's and bond's interest rates. It should be clear by now that the privatization gain of FDC systems is given by the possibly high rates of return generated by stockpiling capital in the market's stocks and bonds and by the rationalization of management costs that comes with a fair competition between different private pension fund's managers.

A further gain of privatizing the pension system may be achieved by increasing the voluntary savings each individual has. Without PAYG systems, taxes decrease and therefore private savings increase. Overall people spend less on pension contributions because, possibly, the market's rate of return will pay off a part of future pension annuities. This benefit is particularly appealing for countries that register poor savings stocked per person, such as the USA, yet it is again linked to the fluctuations of stock's and bond's interest rates.

VI.II. Relying on the market for social security.

In its research report "Adverting the Old Age Crisis" (1994) the World Bank, although advocating for a partial reliance on privatized pension funds, provides four good reasons why governments should be cautious about leaving pensions to the market. The first is the short-sightedness of

individuals when choosing the right amount of savings for their pension funds. Workers are myopic in the correct amount of savings they accumulate for their pensions. Low-earning workers in particular tend to save much less than what is necessary for their pension or even not save anything at all for old age consumption necessities. Second, in developing countries capital markets may be underdeveloped and saving instruments might be inadequate to ensure the necessary rates of return on investment. Third, information gaps exist between pension fund managers and pension claimants on how market investment works. Finally, long-term poverty makes voluntary savings impossible.

Cesarotto (2005) adds three more obstacles to the benefits of fully funded private pension systems. To begin with, people are myopic in saving and it is hard to imagine how low-income families will be far-sighted enough to reduce their already low income and consumption. A solution may be that of forcing mandatory savings for FF contributions but by doing so people will contract their voluntary savings' benefit they acquired from privatization. Advocates of privatization might counter that compulsory pension contributions will be paid off by a decrease in taxes. This idea was applied by some Latin American and Eastern European pension reforms and was part of the US President Bush's plan of Soc.Sec. reform.

However, in order to decrease taxes states must issue government bonds if they have not accumulated national budget surplus (as is the case of most OECD countries). Pension funds will end up buying those newly issued bonds because they would be the safest and most easy option to guarantee a stable pension to their clients. Furthermore, to pay for interests on bonds the government with privatized social security would be forced to increase taxes. The result of privatization of the pension system is eventually a privatized PAYG system (Cesarotto 2005, p. 41) that would be more costly than a public PAYG (Sandalow 2005). Finally, even if in the long run private savings increase these may not have a positive effect on the national economy as a whole because of Keynes's saving paradox.

Another problem with privatization of pensions is linked with its transition costs. If the present generation of workers starts to accumulate their contributions in a fund this deprives current retirees of their PAYG funding. In order to maintain the same level of pensions, states with ageing populations must borrow huge amounts of money from the market that in time gradually decreases as remaining retirees with PAYG funding die. Feldstein (1998) objects to this critic that, although the government might issue bonds to cover transition costs, the economy would benefit of the end of the crowding out effect for old age security. The positive effect of opening new segments of the economy to the private sector's profits outweighs, in Feldstein's opinion, transaction costs.

All these critics in one way or another imply the moral hazard of trusting the market for social security. Pensions are the only income for millions of people around the world. The recent economic history of the developed world warns us that crisis may happen in the financial market and that stable returns on capital investments are far from certain. Furthermore, any gain pension funds might expect to receive from the capital market depend on the stability and growth of the overall economy. With privatization of social security, market failures are very hard to deal with and risk to torn apart a nation's social fabric.

The World Bank (1994) provides one solution for the public vs private pension dilemma, the three-pillar system combines some characteristics of NDB and FDC pension systems. In this system, the public pillar guarantees a pension to alleviate old-age poverty. Pension annuities are awarded either as mean-tested benefits or as minimum pensions or as a universal flat-rate benefit. Either way, pensions in this pillar are modest in size. The second pillar is the mandatory private pillar, it is fully funded and privatized, and the economic growth obtained by relying on the market (if any) would finance the public pillar. The third pillar is made of voluntary personal or occupational savings (if any). The three-pillar system guarantees freedom of choice in personal pension plans and a safety net against poverty. Still, it does not escape the criticisms related to the heavy reliance on the market for social security.

VII. The problem of ageing for all pension systems

Ageing is a threat for the stability of all pension systems. In public unfunded systems, a smaller number of workers perforce imply less contributions each year and therefore smaller pension annuities, or higher taxes for workers (unless a buffer fund is created). Many states have changed the criteria for awarding pensions from DB plans to DC plans because of the fairer IRR between different categories of workers. Indeed, DC-PAYG plans guarantee higher IRRs for low-income workers with long careers, compared to the NDB system. Furthermore, DC plans provide more predictable estimates of future pension costs compared to DB. Nevertheless, switching between DB and DC plans does not weaken the effect of ageing on unfunded public systems, it merely changes the intragenerational fairness of the system. Governments may choose to change system exclusively for a solidarity and a predictability gain.

In private fully funded systems, contributions are not the only source of pension annuities, a part of pensions is provided for by the market's rate of return on capital of the pension fund. Therefore, the ageing of the population does not directly and irrevocably trouble pension annuities, but it may do so

indirectly if the ageing of the population has a negative effect on the overall economy by altering productivity or investment, and eventually reducing the market's rate of return. *Ergo*, the question of whether population ageing is bad for the economy is crucial. After all, if productivity and wages increase while population ages, the overall economic growth might be maintained if these overwhelm the decrease in the number of workers. Economic growth in population ageing may maintain pensions constant also in public pension systems because higher wages ensure higher taxes to pay pensions with.

VII.I Is ageing bad for the economy?

Researchers have debated on the impact that population ageing has on national economies. As the incumbent governor of the Bank of Italy Ignazio Visco states in a report made for the G10 countries, "Ageing directly alters labour supply and more indirectly its rate of utilization, investment, productivity, consumption patterns, external balances and cross-border capital flows" (Visco 2005). The European Bank found that "Ageing may […] have an adverse effect on aggregate total factor productivity, and thus on output per worker. […] One effect of ageing could materialise via weaker growth in total factor productivity […]. This may be explained by the hump-shaped distribution of average productivity across cohorts that has been found by some studies, which may be related to a slowdown in the adoption of the latest technology as age increases (with statistics showing, for example, a reduction in workers' participation in training with increasing age) or a deterioration in the health of some older workers" (Nerlich and Schroth 2018, pp. 92-93).

If population aging implies a decrease in productivity growth, then it would decrease both the addends of the Samuelson-Aaron theorem, i.e. the growth rates of individual earnings and employment. Productivity is "a long-term determinant of return on capital and thereby of interest rates, which explains why there is a positive correlation between these two indicators" (Bergeaud, Cette, Lecat 2019, citing evidence by Marx et al. 2017). Negative demographic pressures lead to a slowdown in productivity, "by allowing an increasing number of weakly-productive companies and projects to be profitable" (Bergeaud, Cette, Lecat 2019). Weak productivity, in turn, causes a decline in long-term real interest rates. Low long-term interest rates are a threat to the financial stability of privatized pension schemes that rely on long-term stocks and bonds. This explains why population ageing, and the accompanying pressures put on economy by both the productivity and the demographic dividend, may not be solved by merely switching from a public to a private pension scheme, and vice versa.

So far population ageing appears overwhelming, forcing the young to accept much lower IRRs for

their pensions (and social security in general) compared to those payed by their parents and grandparents. Yet, although it will be almost impossible for OECD countries to maintain exactly the same amount of welfare benefits, some solutions may be found by pushing on technological investment and family-oriented welfare provisions. Against any alarmist standpoint, Rauhut (2012) argues that empirical findings made during the 20th and 21st century show no evidence that a downtrend in population growth has impacted on the growth rates of real per capita income in developed countries (Livi-Baci, 1992; Easterlin, 1996; Kutznets 1967; Rostow, 1998, all cited in Rauhut 2012). Although Rauhut recognizes that the change in the dependency ratio does imply that fewer persons will have to support an increasing number of retirees, there is no evidence that this will have an impact on the gross regional product. Instead, technological improvements and progress have always in recent history proven that the way in which resources are exploited by the population can change, in order to avoid the 'Malthusian trap' (this occurs when the resources are not sufficient to feed the population anymore).

One way to quickly escape the Malthusian trap would be a new technology shock. For instance, the contribution of AI or robots to production processes could spark a second wave of ICT development. Developments in better machinery and in technology are driven by both scientific research and chance. Private companies and governments invest in Research and Development (R&D) hoping to eventually increase output. From this point of view, investment in R&D is like investment in machines or new plants because both ultimately lead to an increase in profits and wages determined by the development of new and better products. Strategies to increase spending in R&D includes increasing spending on education and public infrastructure and cut taxes on private investment in R&D. Technology growth increases national output and wages, making the burden of social expenditure contributions more bearable for individual workers. Reliance on technological development appears to be the only option for developing countries facing population ageing. But will an ageing population have the necessary foresight to invest on R&D?

VIII. Political consequences of an ageing population

Population is ageing and so are electoral constituencies. In liberal democracies public pension schemes have created in many fast ageing states constituencies that rely on the pension system (Hinrichs 2011). Some may argue that as the population is greying politicians in elections will defend the status quo and impede any welfare reform for the elderly (Atella & Carbonari, 2017; Morosini 2013). Therefore, population ageing may imply the emergence of gerontocracy, the government of the elderly. Atella and Carbonari (2017) point out that when the decision-making process inside a

country is controlled by the oldest individuals these are unable to seize the opportunities that new technologies and innovation offer. In order to support the increasing costs of population ageing, a gerontocratic society undermines the financial and moral support of education and investment.

For the numerous electoral cohorts of retirees, the most rational option is to vote for the maintenance of high pension benefits, and politicians might be tempted to abandon investment in future generations because of electoral tactic. Another plausible calculated behaviour is not to adjust pension annuities and contributions according to changing productivity and demographic changes. This is possible in the short-to-medium run if decision-makers rely on public debt to meet the demand for high social security spending. Nevertheless, in the long-run substantial reliance on public debt has negative consequences on the economy as a whole, evidence may be found in the case of Italy, explained in further detail below (chapter IV).

IX. Conclusion

This chapter has described the theory behind the most common pension systems in developed countries. Different pension systems do not per se guarantee pension annuities to all citizens because pensions in all systems depend on the output of the economy produced by current active workers. Economic growth influences pension annuities either directly, by reducing contributions workers are able to pay or indirectly, through market interest rates. As the World Bank puts it in an above-mention report: "Everybody, old and young, depend on the current output of the economy to meet current consumption needs, so everybody is better off when the economy is growing – and in trouble when it's not […] The choice among alternative arrangements for old age security affects the welfare of the old, because it determines the share of the national pie they can claim" (p. 3). The World Bank believed in this report that the world economy would benefit from a reliance on the market for pension asset. Yet, recent market failures and economic crisis demonstrate that reliance on the market is always unpredictable.

The growth of pension annuities will threaten the stability of the welfare state, especially in those developed states already struggling with public debt. But demography is not destiny. Reforms are necessary to increase productivity through investment in education, technology and infrastructure (public or private). An increase in productivity enlarges the size of the national pie that society then divides between young and old. The Samuelson-Aaron theorem holds in all pension systems either directly or indirectly. The only way to maintain constant contribution rates as population ages is to increase the growth rate of individual earnings or to increase employment by allowing full

employment to those cohorts of the population that are impeded to do so by gender roles or discrimination. However, the increasing number of retirees in electoral constituencies might foster policymakers in liberal democracies to adopt short-term myopic policies that further increase pension annuities for electoral strategy, while at the same time decreasing investment in R&D.

One possible solution to the ageing problem is to revise expectations on future pensions and accept adjustments, such as an increase in the retirement age or a decrease in pension annuities. Nevertheless, Pension systems are hard to reform because welfare entitlements are regarded as social rights people wish to defend. The proof of voters' intents to defend acquired social rights such as their pension entitlements is visible in the protests that naturally sparked in France and Italy when a pension reform aimed at tightening social security spending was suggested. Population ageing *per se* does not cause widespread economic distress. However, the impact that population ageing has on elections and policy proposals may undermine the crucial investments on education and new technologies that are needed to guarantee to future generations the same economic status and social rights as their parents and grandparents.

Chapter III: public healthcare spending and population ageing

I. Introduction

Health and affordable healthcare are human rights. This right is enshrined in the Constitution of the World Health Organization (WHO), signed by 194 states, which declares, "the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition. […] Governments have a responsibility for the health of their peoples which can be fulfilled only by the provision of adequate health and social measures." (1946). In theory, good health is recognized as a right to guarantee by almost all nations of the world, through one healthcare system or another. However, target 3.8 of the 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, reveals that universal health coverage is still far from being achieved in both developing and developed countries.

A healthcare system is the method by which care is delivered to the sick, frail, disabled and dependent people. It includes issues of equality of access, quality of treatment, expenditures and responsiveness of those who need medical help. In order to achieve universal health coverage, different states adopt different combinations of public spending and reliance on the market for care. In any case, the total healthcare expenditure takes a large share of national budgets and of individual savings. The need for

care in health issues affects people worldwide with great inequality, with some happy few having no financial pressures and others coping with exorbitant health expenditure. All developed states and many developing states created some sort of welfare safety nets to aid people in need for healthcare. Yet, different systems have proven more successful in granting a better health results than others, in low-income as well as high income countries.

The question of the relationship between population ageing and the healthcare systems is complex and multifaceted. In analysing this relationship, a difference must be made between welfare for healthcare in the strict sense and welfare for long-term care. Welfare for healthcare strictly speaking is related to short-term inpatient health services. Personnel in this field is specialized and performs life-saving operations in order for people to recover as soon as possible. In this field most welfare provisions have been developed and put in place. These services may be satisfied by a combination of large centralized hospitals and clinics, and widespread local services such as family doctors, domiciliary visits and preventive care. The degree of diffuseness of the healthcare system varies greatly in different states and within the different types of healthcare systems. In addition, federal states or states that devolve health management to local authorities may present great local diversity in services provided and health results.

Another crucial aspect of the relationship between healthcare and population ageing is long-term care, i.e. the help given by social services to old and disabled citizens who cannot perform everyday activities on their own, and most probably will not be able to do so for many years ahead. It includes long-term pharmaceuticals and medical treatment, welfare benefits' indemnities and specialized caregivers. In this last field, welfare provisions are underdeveloped and consequently the burden of care weights on informal caregivers, most frequently close relatives and women.

This chapter is divided in two main chunks. The first part will compare three different healthcare systems present in different countries. These are the national health system (NHS), the health insurance system and the residual liberal system. The systems will be evaluated in their capacity to satisfy the four basic functions of healthcare systems, viz. equality of access, quality of care, economic viability, and responsiveness of caretakers. Finally, different systems adopted in different countries will be compared according to total health expenditure related to changes in the health condition of the population. The second part will assess the consequences of population ageing for healthcare systems. First, I will consider some medical consequences of ageing and their possible repercussions on healthcare spending. Subsequently, some policy solutions will be put forward to adapt healthcare systems to population ageing.

II. The different types of healthcare systems

II.I. The healthcare policy quadrilemma

In his research Bruno Palier (2010), evaluates different healthcare systems in developed countries according to their ability to achieve four different objectives. The first objective of healthcare systems is the equality of access to healthcare for all. This social objective measures the number of people who can benefit from the healthcare system no matter their economic condition, their place of residence or cultural background. In addition, the equality of access criteria includes the access people have to healthcare providers of the various level of care. Assessing access to care includes patients' control in access to both general practitioners and specialist medical personnel.

The second objective of the healthcare policy quadrilemma is the medical objective of healthcare systems to assure the highest possible quality of care and the optimum condition of health of the population. The fundamental question to answer in judging the systems' medical quality is 'what services are being paid for?'. This evaluation looks at the quality of medical equipment and its technological advancement, as well as money devoted to research and development of new and more effective cures. This part of evaluation also comprises the depth of care for long-term expensive treatments (for instance, cancer, cardio-vascular diseases, AIDS, diabetes and degenerative disease) and less expensive but frequent treatments that rely on whether ambulatory visits are affordable and accessible or not.

Next, all healthcare systems have to deal with financing. The economic objective of healthcare is to control costs and increases in health expenditure, for example in dealing with the ageing of the population. Resources for health safety may be collected and distributed to caregivers in several ways. In all systems some sort of public income-based taxation is provided by the population to supply public healthcare, but the amount of taxes required by governments, and thus the public health services offered, differ. Moreover, the distribution of public money collected for health is a variable of healthcare systems, and so are the renumeration of doctors and the money invested in hospital construction, funding and maintenance.

Finally, the political objective of national health management is to guarantee the responsiveness of the system. This is weighed by the satisfaction, freedom and comfort of patients and professionals. The differences in the supply of healthcare among different regions of a country, the number of doctors per inhabitant and regulations by the government and by the market are all variables of this political objective. Controlling patients' movement inside the system and limiting their freedom of

choice decreases the public support for the health welfare system. Patients like to choose their cure when sick, but most of the time they are in a position of asymmetric knowledge in their medical condition and possible treatments with their treating physicians. This political objective of confirms that healthcare policy, like pensions and in general all welfare social policies in liberal democracies must gain the support of the majority of the voting population to be established and emended.

The following sub-paragraphs will describe the different healthcare systems present in different developed countries and evaluate their ability to achieve the four objectives of the healthcare policy quadrilemma. It is worth noting that the following healthcare systems are ideal types and healthcare arrangements vary across, and even inside, different countries. For instance, healthcare provisions may be devolved to regional authorities or be highly centralized. In addition, many countries present a mix of the systems outlined below. Nevertheless, the categorization outlined below effectively points out at some of the differences present in the healthcare systems of developed countries.

II.II. The national healthcare system (NHS).

National healthcare systems rely almost completely on public health management, while private insurance and individually paid care are marginal and perform residual and complementary medical treatment. In these systems access to healthcare is free in all its aspect for all citizens, the only exception being some dental medicine, some drugs (frequently at a discounted price) and most of equipment needed for poor eyesight. The great majority of healthcare is organized and managed by the state and funded by progressive taxes on income and lump-sum general taxes such as the VAT. Examples of this system may be found in Denmark, Sweden, Norway, Finland, Italy, Spain, the U.K., and in part in Greece, Canada, Australia and New Zeeland. Although no country in the world may claim universal coverage for 100% of the health expenditure required by its population, countries that rely on the NHS achieve the highest results in this regard. Since the NHS relies on progressive taxes for its financing, the state forces redistribution in order to meet the costs of treatment for poor citizens, low-income workers and patients' suffering from chronic disease. The system is made to break down inequalities in healthcare.

About the social objective of equality of access, Denmark, Sweden, Norway and the U.K. provided the best public coverage in the world, covering more than 80% of spending on health (except the U.K with coverage slightly below 80%) (OECD 2019a). Similar results have also been achieved by Japan by using a heavily subsidised public insurance system for the self-employed and unemployed (Justin McCurry, The Guardian 2016). Patients have freedom of access and free coverage for the great

majority of treatment and all costs of mayor long-term diseases, and they may access for free all kinds of specialists. However, freedom of circulation is not admitted within the system. In the NHS patients rely first on their general practitioner that admits then patients to a specialist normally operating inside a hospital centre. This system may cause long waiting lists if the number of patients requiring specialists is much greater than NHS personnel, this is especially true for non-deadly diseases, such as hip replacement, elbow injuries and cataract. Another issue with the quality of care is that the NHS may not finance experimental or newly tested medical drugs because of budget constraints.

Services payed for by the NHS vary across different countries. In all healthcare systems of Western Europe, the most expensive treatments are covered. These include cancer, cardio-vascular diseases, AIDS, diabetes and degenerative disease with good results on life expectancy, as will be explained below. For less serious and expensive diseases, in some states, exemptions for ambulatory costs exist based on age and income (this is the case of Italy and the U.K.). The system includes family doctors, healthcare delivered at home and preventive care. NHS services may be centralized or decentralized, and healthcare management may be devolved to local authorities. For instance, in Italy's NHS health management is devolved to regions, some of which have managed their section of the NHS by relying on a centralized healthcare system based on few large hospitals and clinics, for instance Lombardy. Other Italian regions instead focused on a widespread capillary system based on small medical facilities, family doctors, healthcare delivered at home and preventive care. An example of this system may be found in the Veneto region (Stevanato, 2020).

The fact that all have access to care is an advantage in the quality of care for the majority of the population. However, for the middle-to-upper class services received by the NHS are lower than what they could afford in a privatised healthcare system because part of their contributions for public healthcare go to lower income citizens who otherwise would could not afford health coverage. Also, when healthcare is devoted to public management, research in new medical and pharmaceutical technology is lower than in countries that rely on private insurance. In fact, in countries such as the USA pharmaceutical companies and private caregivers have much higher profits and can invest more on R&D for medical development (Mashall and Kliff, 2019).

Financing of the NHS is done by income-based or lump-sum taxation and expenditures are payed for by the national overall budget. Hence, the burden of health expenditure does not strictly depend on active workers' salaries as is the case for pensions. Renumeration of medical professionals and facilities is done though *a priori* financing, this implies that each year national health institutions define a total amount of expenditure for all types of healthcare and no cure may be given by public

health institutions that is not covered by the national budget (most often some flexibility exists in budget constraints). Efforts to limit expenditure starting from the 1980s have encouraged hospitals to give up costly spending on ineffective and experimental treatments and to use the least possible number of hospital beds (Parlier 2010). In addition, it is profitable for the NHS to invest public money on prevention campaigns in order to limit the cost for public finance of diseases caused by incautious behaviour in sex and alcohol and tobacco consumption (Atella and Kopinska 2014; Rechel, Doyle, Grundy and McKee 2009). Budget constraints encourage prevention and home care when more efficient and less costly compared to hospital care.

Finally, the regulation and limitations of the system, as well as the supply of healthcare is entirely deliberated and acquired by the state (which may refer to its personnel in policy deliberation). Patients have little choice compared to other systems in the decisions made by general practitioners in prescriptions and treatment. Because the system makes it hard for patients to change their general practitioner and since there are no out-of-pocket expenses made by citizens directly to their doctors, patients may put little pressure on doctors in order to have more or better prescription. Thus, the caretaker's freedom inside the NHS is reduced to the sole ability to vote for politicians that wish to reform the NHS or not. This absence of voice in the affairs of their health welfare induces patients to prefer the health insurance systems (Euro Health Consumer Index 2018).

II.III. The health insurance system

Following a Bismarckian welfare logic, this system admits the liberal practice of medicine and competition among different medical professionals, but resorts to a compulsory insurance mechanism whereby each citizen is insured either by their employers or by the government. Therefore, in this system supply of healthcare is partially private and partially public. Expenses are financed by both health insurance funds and by active workers' contributions that are earning-related. These systems were inherited from old Bismarckian health insurance systems that were instituted in the late 19th century for employees and the working class and were based on workers' contributions. Since then, they were extended through free public insurance for the most deprived in order to achieve universal health coverage (Martin and Parlier 2007; Palier 2010). Examples of this system may be found in Germany, France, Austria, Belgium, Luxemburg, and partially in Japan, the Netherlands and some central and eastern European countries.

In health insurance systems, universal coverage is possible because the state pays a part of the doctors' bill and pharmaceutical costs for the most deprived. But unlike the NHSs, doctors are free to charge

any price to patients and prescribe any medicine they deem appropriate. In fact, free competition exists between healthcare professionals. In addition, freedom of circulation between different level of care is not prevented. Patients can ask to be visited directly by a specialist. In this way, patients' choice is enhanced but so is medical nomadism, the phenomenon by which doctors encourage more prescription to satisfy a client. The result might be an increase in unnecessary pharmaceutical prescriptions which in turn both increases healthcare costs and creates dependency on drugs. As NHS systems, public health insurance systems cover the cost of expensive treatments and a part of less serious expensive treatments, guaranteeing a high and accessible quality of care, although at a high cost.

Funds for public healthcare expenditure are based on contributions on salaries. Spending for hospitals is *a priori*, while spending for general practitioners' and specialists' visits are payed *a posteriori*, meaning that doctors are paid a part of their bill by the state for some citizens, eligible for welfare benefits. *A posteriori* spending for medical professionals make public healthcare costs unpredictable. Also, the system fosters unnecessary medical treatment, since it is in doctors' best interest to make patience come back for a new "fee for service" state-payed visits. Compared to the NHS, the liberalization of medical professions creates greater inequalities in doctors' renumeration and in patients' treatment, apparently because of patients' choice. However, the ability of sick patients to evaluate different medical professionals and choose the best quality/price ratio for their cure is questionable, as will be further explained below. Health insurance systems enjoy popular support because they entrust patients with the power to decide their doctors and cure, and at the same time they guarantee universal access to care.

II.IV. The liberal healthcare system.

This system is based on privatised welfare assistance for healthcare. Public health coverage is residual and only prearranged for emergencies and for a small number of the most poor, old and invalid. The majority of citizens are assumed to rely on private insurance funds, but consistently a section of the population has no or a very poor insurance, and consequently may be in financial strains to pay for their healthcare necessities. The system is found most-notably in the United States and in part in some central and eastern European countries, along with some Latin American countries.

Where healthcare is mostly privatised and medical professions liberalized, access to public healthcare is limited to particular categories of the population. For instance, in the USA the Medicaid, SCIHP, Medicare and veterans' health benefits programs for public health coverage cover access to healthcare

for 34 percent of Americans (Berchick, Bernett and Upton 2019, cited in Nunn, Parsons and Shambaugh 2020). The rest of the population has to rely on private health insurance to cover healthcare costs. Although public spending in the USA healthcare system has almost doubled between 1990 and 2018 because of the 2006 and the 2014 reforms, 8.5% of Americans have no health insurance. Therefore, about 28 million American citizens have no access to healthcare at all, except for quick life-saving emergency operations. This number does not include all the people with poor health insurance who do not have access to health coverage for many diseases with costly treatment because not covered by their insurance. Empirical evidence shows that these systems are the worst in achieving universal health coverage.

Access to healthcare and quality of care are also hindered by the way private health insurances decide the premiums to be paid by individual caretakers. In private healthcare systems, the old, disabled and chronically sick must pay higher premiums for healthcare to be available. In this way, the economic, social and health status of a patient determines the quality of care he or she can afford. Often firms bargain with workers the amount they will invest in their health insurance and may increase that amount as a promotion, thus tying access and quality of care with career path and professional success. If they can afford it, patience can choose any kind of doctor or hospital and doctors may prescribe any approved pharmaceutical they wish. As a result, patients risk suffering from medical nomadism and drug abuse. This system produces great inequalities in the quality of care due to economic impediments. These countries' medical results, such as life expectancy and infant immortality, present the countries' mean results, but it should be noted that these results hide great statistical variance. High-income citizens have much higher health results than low-income citizens.

Financing of healthcare costs depends upon a mixture of taxes and contributions to private insurance companies through the payment of premiums. In addition, despite widespread coverage, many people still face large and variable out-of-pocket healthcare-costs. In the US in 2017, 1 in 50 Americans payed an extra $5,000 for medical expenses on top their premium, 1 in 200 paid over $10,000. On the other hand, one in seven Americans have no out-of-pocket costs at all in a given year (Nunn et al. 2020). Furthermore, regulation of health supply and demand is done by the medical and pharmaceutical market. Where medical professions are liberalized, doctors are not required to follow governments' guidelines on how to use medical supplies, but instead they must apply different treatments to different patience according to their insurance guidelines. The choice between different hospitals and medical professionals depends ultimately upon career success and wealth, not individual feelings on care.

II.V. The results of different healthcare systems.

The outcome of different healthcare systems is hard to analyse because of the many variables that may be taken into account. In assessing the health status of the population some common indicators are life expectancy at birth, infant mortality and the potential years of life lost. This last indicator is a summary measure of premature mortality, providing an explicit way of weighting deaths occurring at younger ages, which may be preventable.

According to the OECD (2019a), in 2017 above-mentioned countries relying on the NHS and the health insurance system in Europe have similar life expectancy, raging between 81.1 (Germany) and 84.2 (Japan) years of age. Life expectancy between 1995 and 2017 has increased by about 7 years. Instead in the USA, in the same timeframe, life expectancy increased merely by less than three years, with the latest life expectancy results (78.6 years in 2017) being the same of 2010. Also, in infant mortality results public healthcare systems scores better than the liberal system of the USA. In 2017, infant mortality in the USA (7.6 per 1000 children) was at least twice as much of NHS countries and those whose healthcare is based on public-subsidised insurance (these range from 1.9 per 1000 children in Japan to 3.9 in the U.K.). Finally, potential years of life lost show the same trend, with NHS and health insurance systems scoring much better results than the US and other liberal healthcare systems.

About expenditure, results portray that liberal healthcare systems have dramatically higher healthcare costs than other advanced economies. In particular, in the USA not only prescribed drugs cost more, but higher prices are also required for outpatient procedures like colonoscopies, MRIs, and cardiac catheterization, and hospital procedures like C-sections and bypass surgeries (Hargraves and Bloschichak 2019, cited in Nunn et al. 2020). Additionally, the administrative costs of private insurance ranged between 25-50% of premiums in 2018, whereas administrative costs of public systems are about 5% of national budgets (Palier 2019). The reason for this is the need for private insurance to make profit and spend some money on advertising. Results highlight that in healthcare a higher expenditure does not necessarily imply higher quality treatment.

Comparing the total health expenditure of the NHS and the health insurance system, the latter has a higher cost for individuals, although a lower one for government budgets. Therefore, the NHS achieves similar medical results to the health insurance system but cost less for the individual citizen. Yet, the Euro Health Consumer Index (2018) highlights that Bismarckian systems have higher satisfaction rates than Beveridgean ones (p. 21). This may be caused by the poor choice options for

patients inside the NHS. In the NHS citizens so not have direct access to specialists and doctors have an incentive to prescribe less government-subsidized drugs compared to the health insurance and liberal system. Yet, health results suggest that even though patients in the NHS are less satisfied and consume less drugs, they live as healthy and long as patients in health insurance systems, although paying less in the sum of voluntary savings and taxes for healthcare.

A higher spending in healthcare does not imply better health results. In fact, the opposite may be the case. Constraints in healthcare budgets can drive quality and increase population health by increasing discipline and innovation and by investing in prevention programs for behavioural health and early detention of cancer (Feeley 2013). For instance, in the USA between 1999 and 2012 private insurance premiums rose 4 and a half times faster than inflation in workers' earnings. On the other hand, in Italy in the same timeframe the NHS safeguarded the access and quality of care for its citizens despite the cuts in national health budgets and significant population ageing. As a matter of fact, by relying on the NHS the Italian government spent in 2018 $ 2,545 per citizen, about half of what a German ($5,056) or a French citizen spends per citizen on healthcare by using national public health insurance systems (in the USA expenditure rise to $ 8,949 per person, including private insurance) (Italian Parliamentary Budget Office, 2019). Italy's case best shows the success of the NHS because the country achieves one of the best life expectancy results in the world (83 years on average) while spending significantly less in total heath expenditure per capita compared to other developed countries, such as the majority of northern European countries, the USA, Japan, Canada and New Zealand.

The NHS has indeed a number of issues. Waiting lines for specialists may be long and painful and some drugs may not be available because out of the national health budget constraints. Nevertheless, the alternative is for a great chunk of the population not to be able to afford access of healthcare, while the high-income citizens will have the most high-tech and specialized care. Mashall and Kliff argue that "prescription drugs are more expensive in the US because they're cheaper everywhere else" (2019). In liberal countries such as the USA, part of the profit earned by pharmaceutical companies is then invested research and development, and the new treatments developed are then bought by public healthcare systems around the developed world. However, higher public investment in R&D may guarantee innovative pharmaceuticals without giving up on the aim of universal access to good quality healthcare.

All in all, the socialization of healthcare has proven to be the best option to fulfil target 3.8 of the 2030 Agenda for Sustainable Development. The WHO healthcare rankings (Tandon, Murray, Lauer,

& Evans, 2001) and research by the Commonwealth Fund (2017), The Guardian (2016) and the Hamilton Project (2020) all confirm the supremacy of the socialization of healthcare management over liberalization.

III. Healthcare systems and population ageing

The implications of population ageing for the healthcare systems around the world are controversial. Between one third and half of all expenditures on healthcare go to the elderly. The old spend on average from 2.7 to 4.8 times in healthcare the expenditure of a young person (Anderson and Hussey 2000). The spending for the elderly increases in those countries that in general pay out more on healthcare, as in the USA, France, Germany and Norway. As population ages, so do diseases related to age, such as cancer, dementia (including Alzheimer) and disability related to falls (for instance hip fractures) (Garza 2016). The general increase in the population of obesity and diabetes also has an impact on old age healthcare costs. Furthermore, increase in longevity has a positive correlation with chronic disease increase (Atella and Kopinska 2014). The gains in life expectancy and chronic disease will lead to greater demand for labour-intensive long-term care (LTC). The OECD (2019a) predicts that the number of older people in need of care around the world will increase by 100 million by 2030.

Healthcare for the elderly is increasingly costly, because it relies on complex technologic development and a high number of pharmaceuticals. Progress in medicine may slow down severe disability and increase milder chronic diseases, and consequently expensive long-term care (Atella and Kopinska 2014). In delivering long-term care all healthcare systems are less developed and with less well-trained personnel compared to hospital inpatient care. Furthermore, in many countries LTC is delivered informally by family members, most frequently women, that must switch to part-time jobs or quit working in order to provide care for their sick loved ones. This increases individual healthcare costs and inequalities. Population ageing also implies that as the old in need for LTC healthcare increase, the active working population for healthcare decreases, further increasing healthcare costs.

However, researchers do not predict that population ageing will cause an imminent economic crisis because of the increase in healthcare costs (Anderson and Hussey 2000; Bloom, Boersch-Supan, McGee, Seike 2011; Atella and Kopinska 2014; Rechel et al. 2009). Rechel et al. suggest that ageing does not lead to an inevitable drain of resources. Instead, the greying of the population might decrease healthcare costs for two reasons. First, the cost of dying is lower in oldest age groups. A large share

of healthcare costs falls in the last years of life and in particular the last few weeks before death. Hence, proximity to death is a more important predictor of health expenditure than ageing itself. Second, utilization rates of healthcare peak at around 80 years of age, with older patients needing the least social and hospital services. Still, the decrease in the cost of dying and utilization rates for older patients may be due to the discrimination in the allocation of more costly interventions due to age.

More realistically, population ageing may not necessarily lead to a compression or an expansion of morbidity and of the consequent healthcare costs. Population ageing results indicate a dynamic equilibrium scenario taking place as longevity increases, with a reduction in severe disability and an increase in chronic mild disability. It is undoubtable that the need for care as population ages changes and healthcare systems must adapt in order to avoid heavy economic consequences. The first reform needed is the increase in public-financed long-term care, including nursing homes, LTC living facilities and home-delivered assistance. "Providing safe care for these patients is a key challenge for OECD health systems, as residents of LTC facilities are more frail and sicker, and present a number of other risk factors for the development of patient safety events, including healthcare-associated infections (HAIs) and pressure ulcers" (OECD, 2019a, p. 238). In order for LTC to be delivered appropriately, a higher coordination is needed between health and social services.

Population ageing may require a change in the healthcare organization and delivery. For instance, new medical training may be needed to respond to comorbidity, i.e. the fact that people have more than one disease or condition at the same time. Of the baby boomer generation born between 1946 and 1964, 60% will be managing more than one chronic condition by 2030 (Garza 2016). Hence, new approaches in healthcare delivery that focus on treating several diseases and not on compartmentalization of care, may meet the need for a multidisciplinary approach and better case management.

One policy reform available to avoid fiscal pressures due to population ageing is the focus on prevention. Investment on prevention increases longevity and reduces morbidity and mortality. Yet, prevention is only a small part of national budgets, and has been cut in OECD countries because of the 2008 economic crisis (OECD, 2019a). States may use its already existing institutions and powers to implement prevention policies through schools, tax exemptions, specific training in public healthcare facilities, compulsory nutritional information on food packaging and the use of public infrastructure to promote physical activity. In general, the promotion of healthy ageing reduces lifetime health expenditure and morbidity and increases longevity.

IV. Conclusion

Healthcare expenditure in developed and developing countries is huge. Almost 10% of the world GDP is spent on health in all its aspects (World Bank 2020). Countries where public spending covers most of the costs and is managed well achieve the highest health results in mean quality of life and life expectancy. Also, public-financed healthcare systems cost less to the community as a whole and flatten the inequality curve. States with efficient national healthcare systems have almost the same health results as states that resort to compulsory publicly financed insurance schemes. But NHSs achieves its health results with the lowest total health expenditure.

Ultimately, the liberalization of health professionals and the privatization of healthcare create costly and poorly effective health results because the laws of supply and demand fail constantly when applied to health. When sick or about to die, people do not rationally compare different private insurance schemes and cannot choose the optimal combination of health goods they prefer. Patients pay as much as they can to get better cures and thus competition has no positive effect on the healthcare market. Furthermore, the inequality in the need for healthcare among different citizens is huge and no private insurance schemes would be profitable in covering health costs for them. This is the reason why the socialization of healthcare management gives better population health results and does so with the lower costs.

The ageing of the population does not imply un unbearable increase in healthcare expenditure. However, healthcare systems must adapt personnel and facilities to new kinds of health demands. New medical treatment, improving coordination between health and social services for long-term care and increasing in spending on prevention are all necessary measures that adapt public health welfare to an ageing world population. The socialization of healthcare achieves better and cheaper health results also with population ageing if some policy reforms are carried out. The privatization of care and liberalization of medical professionals is not the best option available to governments to reduce the pressures put by population ageing on public budgets. On the contrary, strategic reforms of public health management may be sufficient.

Chapter IV: population ageing and the Italian welfare state

I. Introduction

The recent evolution of the Italian welfare state is interesting for public policy and economics researchers around the world for a number of reasons. Italy is the oldest country in Europe and the

second oldest in the world. The country is very much ahead of most nations in the world in the process of population ageing, thus by studying the phenomena occurring in Italy one can imagine what might happen to other countries with a similar population pyramid and welfare policy's evolution. The ageing of the Italian population has been strikingly fast in recent years. To give an idea of the scale of Italian ageing, in 1980 the population of under 20 in Italy counted 17 million people, while 10 million citizens aged over 60. In 2015 these were exactly the opposite way around, with the over 60 population counting 17 million people, while the under 20 just 10 million.

Italians became in 1995 the first national community in the history of mankind where it is easier to run into a citizen over 65 than a child under 15. Demographist Joseph Chamie, former director of the UN Population Division, defined this milestone in the process of population as the "historic reversal of populations". First recorded in Italy, it concerned 30 countries in 2015. In 2020, the number of countries expected to overtake the "historic reversal" is projected to raise to 35, while by 2030 the elderly will outnumber the under 15 in 56 countries (Chamie 2016, cited by Golini and Lo Prete 2019, p.25).

Many reasons lead to population ageing. Although economic development is the main agent responsible for population ageing, this is also influenced by other factors. In Italy, the failure of politics to adapt the national welfare state policies in a rapidly evolving societal structure influenced demographic trends, further encouraging the ageing of its population. In fact, Italy is the country that devotes the highest percentage of domestic income to the elderly in the world (Golini and Lo Prete 2019, p.115), yet the over 65 population in Italy is also the cohort that least risks poverty. On the other hand, the cohort of the population that is most in risk of poverty, i.e. the young aged between 18 and 25 and single parents, receive no or very poor social aid by the Italian welfare state. This welfare arrangement is not sustainable in the long run.

The macroeconomic solution to the problem sketched above would be to transfer public resources to more productive cohorts of the population in order for them to pay fair contributions to current old age welfare and one day benefit of the same safety net of their parents and grandparents for themselves. In fact, since its inception, the goal of the welfare state has been to mitigate the dependency of citizens from the market and their family role (Flora 1986). The welfare state reconciles the needs of individuals for a decent life with the needs of the capital for profit (Gough 2000). Yet, no welfare provision is being suggested for new demographic cohorts of the population are in need for help, namely younger workers and single parents. The reasons for this might be found in strategic political behaviour. Politicians are conscious that a growing number of electors depend

on old age spending as the sole household income and adapt their political behavioural accordingly.

This chapter demonstrates why the Italian old age welfare system is at risk because of population ageing and the impact ageing has on the likelihood of welfare reform in Italy. The chapter is organized as follows. The following part will set out the most fundamental demographic statistics of Italy's population ageing and some predictions for the future. The second part looks into the economic consequences of population ageing for the sustainability of the welfare state by looking at the evolution of pension and healthcare spending. Sustainability depends upon the employment and productivity rates, since it is active workers who pay contributions to welfare as a percentage of their income. Part IV will highlight how a section of the population has been ignored by welfare provisions, causing an unequal redistribution of wealth and widespread poverty in young workers and parents. Population ageing does not have merely economic consequences but societal and political consequences as well that are addressed in part V. All these consequences of population ageing will help answer the final question, i.e. can the Italian welfare state be reformed?

II. Italy's contemporary demography

As explained in chapter I, population ageing may depend upon three demographic changes, an increase in longevity, a decrease in fertility and an irrelevant or negative effect of migration. In Italy all these three demographic changes are occurring. First, according to the Italian National Institute of Statistics (Istat 2019), life expectancy in Italy in 2018 has raised to 80.8 years of age for men at birth and 85.2 for women. Italy's life expectancy is the fourth highest in the world (following Japan and Singapore and including Hong Kong) and the first highest in Europe (UNDP 2019). Second, the total fertility rate (TFR) has decreased in Italy in 2018 to 1.32 children per woman. Fertility rates are particularly low in the south of Italy (1.29) and in the centre (1.27). Italy has experienced a sharp decrease in fertility rates since the peak of the "baby boom" generation in 1964, when each woman had on average 2.7 children. Since then, fertility rates plummeted to 1.19 children per woman in 1995. Between 1995 and 2019 fertility rates have slightly increased, yet they are still noticeably lower than the 2.1 total fertility rate necessary for the population to stabilize. The Italian low fertility rates inevitably imply a decrease in Italian population. By mathematically computing population estimates according to the current TFR, Golini and Lo Prete (2019) predict that the decrease in Italian population will be slow at first, reaching 59 million people in 2045, and faster later. In the absence of external shocks or new *ad hoc* welfare measures, Italy in 100 years' time will be inhabited by only 16 million people (ANSA 2018).

The reasons for this sharp decrease have been attributed by Golini and Lo Prete (2019, pp. 65-71) to the emancipation of women made possible by the increase in female education and employment rates, the decrease of traditional gender roles and the process of Italian secularization starting from the late 1960s. These demographic trends are seen in all developed countries, however since the 90s active labour and family welfare policies have managed in some developed countries to bring fertility rates back up closer to the 2.1 rate (Rovny 2011). For instance, through these policies Germany increased its TFR from 1.24 in 1994 to 1.57 in 2017 (Klein, Weirowski, Künkele 2016). Although slightly higher than the 1995 rates, the current total fertility rate in Italy is the sixth lowest in the world and the second lowest in Europe (following South Korea, Singapore and Spain, and including Hong Kong and Macao).

Third, net international migration movement determined a positive balance but decreasing, with permanent immigrants in 2018 being 175,364, net of emigrants (in 2017 they were 188,330) (Istat 2019). All things considered, the resident population of Italy is declining, losing 190,910 residents in 2017 and 193,386 in 2018. On January 1st, 2019 Italy's population was 60,359,546. That number will undoubtedly continue to decrease. From this demographic situation it follows that Italy's present-day population pyramid is reversed. People born before the drop of fertility rates occurred between the end of the 1970s and the 1980s make up by far the most populous cohorts. As the age of cohorts is smaller their size decreases. In other words, the old age index, given by ratio of over 65 to under 15, is high and increasing. In 2019 the old age index in Italy was 173.1 % and increasing compared to 2018 (168.9%).

III. The economic consequence of population ageing: an increase in "old-age" welfare expenditure

Italy's population is ageing at a fast rate, as the "baby boom" generation is retiring and contributors to welfare are shrinking one might ask whether the Italian welfare system is sustainable in the long run. One of the most intuitive consequences of population ageing is an increase in government spending, leading to an increase in public deficit. Population ageing leads to an increase in government spending in pensions, healthcare and long-term care (LTC). This is particularly problematic in Italy because the government is dealing with high debt, low financial credibility and a stagnant economic growth. In fact, what Italy has experienced between 1995 and 2020 is an increase of both the demographic debt, resulting from low fertility rates and consequently a low demographic dividend (this relationship is explained in Chapter II), and in public debt because of the effects of population ageing and low productivity for the Italian welfare state's structure. "The two debts, both

increasing the rate of intergenerational injustice, are connected". On the one hand, low birth rates and pronounced ageing increase old age welfare costs, and therefore public debt. On the other hand, economic uncertainty fostered by high taxes necessary to pay for the high public debt has an impact on the wish to breed children (Golini and Lo Prete 2019, p. 80, my translation).

III.I. The Italian pension system and population ageing

Contributions and pension annuities in Italy are provided by the National Institute for Social Security (in Italian *Istituto Nazionale della Previdenza Sociale* or INPS). The Institute has two main duties. One is "providential", its aim is to provide pension annuities and indemnities to workers according to their contributions. This part of the system works according to the NDC logic explained in chapter II. The Institute provides old-age and disability insurance to the whole 22.6 million active Italian workers. The system is public, unfunded and compulsory. Pension annuities are based on contributions made during the active working life of each system. But, since the system is unfunded, its revenue and expenditure are directly related to the number of workers in the system and their wages, determined by their productivity (according to the Samuelson-Aaron theorem whose implications are extensively explained in Chapter II).

In addition to this "providential" role, the Institute also plays a "charitable" role. In doing so, INPS provide 8 million people with poverty, disability, survivor's and war pensions. These benefits are exempted from taxation and given to residents who have contributed to welfare for less than 15 years during their active work life. Many benefits are given to people not according to contribution but according to social status. Frequently pension benefits are given to people who may have never contributed to welfare, such as widow and widowers and unregistered workers. Charitable pensions currently supply almost half of Italian pension beneficiaries (Brambilla 2020). "Providential" and "charitable" pensions are both equally paid for by the active workers and in 2018 supplied 18.1 million beneficiaries.

As explained in chapter II, for public and private pension systems to be sustainable and fair contributions must be constant. This is only possible if the sum of the changes in employment and productivity rates remain constant, yet this is unlikely to happen in the Italian case. On the one hand, population ageing decreases the number of people available as active workers. In Italy this problem may not be so acute because of the low national employment rate of the active population. In fact, only 63% of the population aged between 15 and 65 is currently registered in Italy as employed, far below the EU average measured at 73.2% (Eurostat 2018). Nevertheless, while an increase in

employment is conditional to economic performance, gender roles and welfare policies, population ageing inevitably increases the number of people demanding pensions. On the other hand, total factor productivity (TFP) in Italy between 1995 and 2015 is stagnant. Productivity may be defined as GDP per hour worked, and depends, among other things, on technological progress, firms' organization management and R&D in new and better products. Productivity between 2010 and 2016 has increased of just 0.14% per year, making Italy the second-least productivity growing county in the EU (ahead of Greece) (Giordano, Toniolo, Zollino 2017; Golini and Lo Prete 2019, p. 202).

As applicants for pension annuities increase and productivity remains constant, it is understandable to predict that the impact of pensions on government spending is destined to rise. The Italian Ministry of Economics and Finance (MEF 2018) has registered an increase in the ratio between government spending for pensions and GDP in the last decade. Notwithstanding the heavy cuts in pension spending implemented in 2011 by article 24 of the Law-decree number 201/2011 (also known as the "Fornero pension reform"), between 2007 and 2013 the pension/GDP ratio increased by about 2.6%, from 13.3% to 15.9%. According to Istat, data spending on pensions will slightly decrease to 15.1% between 2019 and 2021 and then increase again reaching 16.2% by 2044. Subsequently, as the baby boom generation stops receiving pensions, government spending will decrease to 15.5% in 2050. Interestingly though, the 2018 predictions on government spending estimated old age spending in relation to GDP to be 1% more that what it estimated in 2017 predictions, because fertility rates were lower than expected (Golini and Lo Prete, 2019, p. 98). Consequently, expected public spending for pensions increased by 15 billion euros per year of additional charges to public budget. This increase in expectations shows that spending for pensions in the future might be actually much more than predicted. In addition, these estimates do not include the latest law on pensions (n.26/2019) that decreases the retirement age and increases "charitable" minimum pensions.

Other data suggests that Istat predictions may be still too optimistic because based on too high fertility rates. The same above-mentioned MEF report produced a second prediction based on lower fertility rates and higher life expectancy and net migration, as suggested by Eurostat (MEF 2018, p.38). In this second estimate, pension spending is 18.4% of GDP in 2040. Instead, according to the IMF government spending on pensions will raise to 20.3% of GDP in 2040 (Golini and Lo Prete, p.97). The IMF estimates are based the expectation that the Italian unemployment rate will stabilize at about 9% and that productivity will rise less than what the Italian and EU statistics' institutes predict. All the above-mentioned estimates are valid, since ageing, pension spending and contributions all depend upon unpredictable fertility rates. In addition, future unemployment and productivity rates are matter of debate. Yet, all agree that the Italian government spending will have to increase by tens of billion

euros per year to cover future pension costs in the current welfare regime.

To counter the exponential increase in pension spending which followed generous pension provisions enacted when ageing was less acute and productivity higher, some policy reforms enacted in recent decades have decreased government spending by increasing the retirement age and decreasing pension benefits (legislative decree n. 503/1992; law 335/1995; enabling act n. 243/2004; art. 24 of Law-decree 201/2011), the only exception being the latest law on pensions that instead did the opposite (Law 26/2019). Above-mentioned pension reforms have not been sufficient to prevent national spending on pensions from increasing significantly. Nevertheless, these reforms have increased inter-generational inequality because they targeted future retirees, maintaining high and unfair benefits for people already retired at the time of the reform's implementation. The impossibility to reform pensions retroactively has created different pension regimes for different age cohorts. Older age cohorts of retirees tend to have the most benefits for contributions paid compared to new cohorts of retirees. This inequality is inevitable in unfunded PAYG pension schemes (with no buffer fund) when population ages and productivity is stagnant (chapter II).

III.II. The Italian spending on healthcare and long-term care and population ageing

Italy for healthcare relies on a National Healthcare System. The Italian NHS devolves power to Regional Healthcare Systems (RHS) ramified throughout the country. RHSs have autonomy regarding the organization of healthcare in their territory in so far as they guarantee universal and public access to healthcare. Therefore, some regions have organized healthcare in their territory by resorting to small diffused healthcare services, while others have centred healthcare around few, large health centres focused around hospitals. The Veneto and Lombardy regions are two powerful examples of the differences that may occur in healthcare management between regions (Stevanato 2020). The devolution of power over healthcare management to regions resulted in great territorial disparities between regions, in most extreme cases of mismanagement the states may take back power over healthcare. For instance, in the Calabria region failure to ensure equality and quality in access to healthcare resulted in compulsory state administration and the suspension of regional devolution (Law-decree 35/2019).

As explained in Chapter III, population ageing slightly increases healthcare spending, but not exponentially. The NHS management is efficient and effective in delivering healthcare. In fact, the NHS has allowed to the Italian population to maintain stable health results notwithstanding recent and projected cuts in government expenditure in healthcare. Between 2008 and 2019 healthcare

expenditure decreased from 7.1% of GDP to 6.6% (MEF 2018). The Italian Parliamentary Budget Office (IPBO 2019) predicts national healthcare expenditure to further shrink to 6.5% of GDP by 2022. Yet, in the second half of the 21st Century Italian healthcare expenditure will rise and stabilize at about 7.7% (MEF 2018, p. 117). Cuts in healthcare have been achieved because of restrictions in the number of healthcare professionals hired by the NHS and the increase of working hours for those who are employed. Furthermore, hospital beds and days of hospitalization have been cut, while costs for ambulatory visits and co-payments are on the rise. Finally, the government has put a limit to public expenditure in risky new pharmaceuticals. All these policies have decreased quality and access to care between 2008 and 2015, especially for low-income citizens (Italian Parliamentary Budget Office 2019 pp. 2-3).

Cuts in healthcare costs during the last decades have not, however, had any substantial impact on life expectancy, infant mortality or quality of elderly life. The Italian NHS achieved high health results during the social and economic turmoil that followed the 2008 and 2010 crisis. According to the OECD (2019a), between 2007 and 2017 life expectancy at birth slightly increased (81.5 in 2007, 83 in 2017), infant mortality decreased (3.1 per 1000 live births in 2007, 2.7 in 2017), potential years of life lost decreased as well (3,873 per 100,000 inhabitants aged 0-69 in 2007, 3,262 in 2015). Finally, deaths for cancer also decreased (215.1 per 100,000 persons in 2007, 194.4 in 2015).

The reason why healthcare expenditure cuts in Italy have not resulted in lower health results may be explained by two factors. First, population ageing is not correlated with exponentially higher healthcare expenditure, as demonstrated in Chapter III. Rather as healthcare technology improves, severe chronic diseases have decreased while milder diseases are on the rise. Second, in the NHS management structure budget constrains may result in better efficiency of the system. This explains why Italy is one of the countries with the highest life expectancy - healthcare spending ratio in the world. As the above-mentioned IPBO puts is, “for a country like Italy, with a high public debt, the chosen model of health management, i.e. the NHS, not only fosters great quality [of access], but also represents an essential tool to control expenditure, that in other systems, based on public mutual societies and insurance schemes (for instance, France or Germany) or on predominance of private insurance (the USA), tend to increase at a much higher pace, resulting frequently in a much higher public health expenditure” (p. 4, my translation).

The Italian MEF (2018, p. 123) also expects an increase in Long-term care due to population ageing. The total public spending for LTC has slightly increased in the last decade, raising from 1.4% of GDP in 2007 to 1.7% in 2017 and is predicted to expand again to 2.6% in 2070. This increase is largely

due to an increase in LTC spending for people over 80, moving from 48% of total LTC public expenditure in 2010 to 70% in 2070. In addition to this government spending, Italy will likely experience an increase in required family care for the elderly that may further hinder national employment rates. Using research interviews and the "open coding" technique to have insights over the interviews' answers, Francesca Degiuli (2010) uncovered the role of immigrant workers and women in LTC care management. This research, made before the 2010 sovereign debt crisis and the following cuts in healthcare, highlighted the inadequate role of the Italian NHS in coping with the high burden of long-term care, the majority of which is carried out by woman who feel the need to fulfil their traditional family role, thus reducing their work-time, income and eventually contributions to pensions and healthcare.

III.III. The Italian old age welfare state and its consequences on old age income.

The Italian welfare state has been and is successful in significantly reducing poverty risks for people over 65. Retirees in Italy benefit of the most generous pension annuities in Europe in relation to GDP and of the highest percentage of welfare expenditure in relation to total welfare expenditure. In fact, in 2017 77.2% of welfare expenditure was awarded to residents aged over 65. Between 2006 and 2016 retirement incomes have increased by 25.6%, whereas the GDP per capita of retirees by 31.6% (Mobili and Trovati 2018). According to Balduzzi (2017), this is largely due to Italian "charitable" pension schemes which are the most generous of Europe. In particular, Italy is the country that awards the highest survivors' pensions in Europe (in Italian *pensione di reversibilità),* these add up to 2.8% of GDP and 5.5% of all government spending. Survivors' pensions are awarded in Italy to citizens of all income, have no upper limit and have suffered no cuts since 2008. "Charitable" pensions such as survivors' pensions are economically and demographically unfair, because they redistribute wealth from poorer and smaller cohorts of workers to larger and richer cohorts of retirees and because they are based on no direct contributions made by the receiver, thus not matching to the NDC pension logic.

Such generous welfare provisions for old age resulted in low and decreasing poverty risks for people over 65. According to the Bank of Italy's statistics (2018), between 2006 and 2016 "the incidence of financial poverty has decreased from 39 to 35% in households whose breadwinner is aged over 65, while it increased in those households with a younger breadwinner, particularly in those younger than 40 (from 40 to 57%). The share of people "at risk of poverty" had a similar evolution […]. The recurrence of both the conditions [households being both in financial poverty and AROP] has doubled, peaking at almost 30% [of the total number of households] in households whose

breadwinner was younger than 40, it increased of merely 5% in those between 41 and 65 years of age and it decreased of 4 points in the oldest" (p. 13). A family is "financially poor" if in the absence of income does not have enough financial resources to avoid being AROP for at least three consecutive months, while families AROP are those whose breadwinner (or breadwinners, in Italian *capofamiglia*) have an income 60% poorer compared to the median equivalized disposable income.

IV. The risks for the sustainability of the Italian old-age welfare.

Demographics is not destiny and population ageing does not necessarily entail massive economic distress, as it was mentioned in Chapter II. Yet, one might question the sustainability of the Italian old age centred welfare system as old age welfare spending increases, contributions decrease, particularly among the young and single parents, and productivity is stagnant. Population ageing is not reversable in the short-to-medium run, therefore old age welfare will require more public resources in absolute terms. The only way for pension annuities and healthcare benefits to remain constant and fair for future generations is to have constant contributions to welfare. Contributions, in turn, depend on the number of people employed and productivity levels. Yet, data on both these aspects show how the future medium-run sustainability of old age welfare is at risk.

Registered employment rates in Italy are low and far below the OECD average since before the 2008 crisis. Between 2005 and 2019, total employment rates remained almost constant in Italy, changing from 57.7% of the working age population to 59.3%, while OECD average rates ranged between 65% in 2005 to 69.1% in 2019 (OECD 2019c). This difference between the OECD and Italian employment average is particularly acute in women. Only 50.2% of woman who could do so worked in 2019, in the OECD as a whole female employment is at 61.9%, while in the Eu it is 64.4%. Employment statistic evidence how "one-third of working-age Italians aren't in a job nor are they looking for one – that's 13 million inactive people in addition to the 16 million pensioners" (Speciale 2020).

Istat predicts that the employment curve will grow to 71.1% in 2050 and then decline to 70.8% in 2070, while Eurostat (which expects lower fertility rates) predicts for total employment to peak at 67.9% in 2040. Both statistics envisage a very moderate increase in female employment. This is alarming for old-age welfare because in advanced economies low female employment equals low contributions and also low fertility rates. The OECD found a positive relation between female employment and total fertility rates, this is a recent development of policies against gender discrimination in the labour force. In fact, in 1980 a negative relation existed between female employment and fertility in the OECD while in 2014 the relation reversed (OECD 2017, cited in

Golini and Lo Prete 2019, p.189-190).

Old-age welfare in Italy is also threatened by stagnating labour productivity. The OECD Compendium of productivity indicators (2019b) exposes how Italy's productivity (GDP per hour worked) portrayed daunting results both in the 2001-2007 (-0.01%) and in the 2010-2016 timeframe, increasing by merely by 0.14%. Thus, in the latter timeframe Italy was the country in the OECD with the least productivity growth, whereas in the former only Greece in the OECD recorded a worst productivity growth. OECD forecasts predict a very slight increase in productivity occurring in Italy in the following years (OECD 2019b). The Italian productivity growth is and will continue to be well below that of the OECD average without any major shocks caused by policy reforms or by the financial markets.

Researchers have pointed out several reasons to explain the stagnant Italian productivity levels. According to professor Fabiano Schifanardi productivity may increase for two reasons. First, firms develop better and cheaper production processes. This is done though investing in better technology and firm's management. Second, from the point of view of the economy as a whole, a nation moves resources (i.e. government spending) from least productive sectors to more productive ones. "In Italy this second process of constant and automatic displacement of resources from least productive sectors of the economy to more productive ones has not worked" (cited in Golini and Lo Prete, 2019, p. 203).

Italy's occupation levels and productivity have been hindered, among other things, by cuts in public investment in education and public infrastructure occurred following the 2010 sovereign debt crisis. These two items of expenditure are directly correlated to the wealth and contributions to welfare of the current and future active workers population. Cuts made to national budgets because of austerity measures after the 2010 crisis, fostered and influenced by the EU and carried out by recent Italian emergency caretaker governments, targeted the already underbudget spending for the young (Sacchi 2016).

Public spending on education (primary to tertiary) has plummeted from 3.8% of GDP in 2009 to 3.35% in 2015 (OECD 2019d). This makes Italy both in 2009 and in 2015 one of the countries in the OECD with the lowest public investment in education. Alarmingly, the government spends a larger portion of public funds to pay back interest on public debt than to fund public education (3.6% of GDP goes to interest payments). Expectations on these two items of expenditure are even more alarming and exemplify the inter-generational inequality of the Italian welfare system. In the Economic and Financial Document 2019, the Italian government commits to spend 3.3% of GDP on

public education in 2025, 3.2% in 2030, 3.1% in 2035, the reduction is due to the decreasing number of enrolled students predicted. Instead, interest payments on public debt are expected to be 3.6% of GDP in 2020, 4.4% in 2025, 5.5% in 2030 and 6.3% in 2035 (Bartoloni 2019). Moreover, infrastructure investment also significantly decreased in Italy after the financial and sovereign debt crisis. Between 2006 and 2016 inland infrastructure investment dropped from 1.51% of GDP to 0.42% (OECD 2020). In 2016 Italy was the country that least invested in inland infrastructure in the list of developed countries made by the OECD, besides Iceland and Montenegro.

Compared to other developed economy, Italy also has low public investment rates in policies aimed at encouraging women employment, thus not addressing the gap in wages existing between families with and without children. Research on different family policies in the EU has shown that "higher rates of fertility and of female labour market participation, and lower rates of poverty, are found in countries where policy support to families is comparatively comprehensive, quite continuous over childhood and based on diversified range of support measures" (European Commission 2009 pp. 11-12). Regarding the instruments of family policies, the EU can be divided into 3 macro- regions (although Continental Eastern European countries do not really fit in any of the following categories). In the Nordic countries, support for working parents with children, well paid parental leave and high provision of childcare services have resulted in comparatively low poverty rates and high fertility. Secondly, the Anglo-Saxon countries are characterized by means-tested benefits targeted at low-income families. Financial support is also restrictive in time and low. In these countries fertility rates are high as well as female employment on part-time employment. Finally, Southern European countries do not grant a long period of unpaid leave, with less developed provisions of childcare services for children. The result is low scores in fertility and female employment rates, while poverty rates are relatively high (European Commission 2009).

Italy well fits in the group of European states that least support women who want to have children and work at the same time. Italy offers tax cuts to families with children, but they rapidly decrease as income increases and are null once a family's income is equal or over 95 thousand euros gross per year (Calvi 2018). Family grants for children vary depending on different work contracts and are higher for employees with permanent contracts and retirees, and lower for employees with fixed-term contracts and self-employed workers (Castiglioni and Dalla Zuanna 2017). In other words, existing family benefits are concentrated in categories of privileged workers, further fostering a "dualized" labour market, with some workers having all welfare benefits and other having none in the name of market flexibility. Also, welfare benefits for families in Italy appear to be significantly lower compared to other industrialized European countries (for instance, France) (Golini and Lo Prete,

2019, p. 197). Finally, the Italian family welfare takes little notice of the hardship of single parent families, whose numbers are increasing (Ruspini 2003).

Low public investment in education, infrastructure and family policies increase risks for the sustainability of the old age welfare system because they depress GDP, net incomes and so contributions. In addition, welfare provisions foster welfare sustainability concerns by disregarding the daunting youth unemployment rate, and the poverty rate it entails. Before the sovereign debt crisis, Italian youth unemployment in the 15-24 age cohort was at 20%, in March 2014 it peaked at 43.5%, in January 2020 it was 29.3%. In the 25- 34 age cohort unemployment rates were at 15.9% in October 2018 against the national average standing at 10.6%. The economic situation of Italian families has also worsened. The number of children with families in which both parents are unemployed or inactive has doubled between 2006 (5.5%) and 2015 (10.5%), then decreasing to 8.9% in 2018. Furthermore, in just 49% of Italian households both parents of children work. In this context of intergenerational inequality, families increasingly rely on the income of the elderly. Out of the 52.2% of Italian households in which both retirees and non-retirees are present, more than 50% of the household income is earned by retirees (Balduzzi 2020).

V. Population ageing and the Italian society and politics.

The Italian welfare state was developed starting from the post-WWII period to meet the needs of the population most at risk of poverty at the time. Following a Bismarkian welfare logic, the state introduced compulsory public pensions schemes and the NHS that were successful in providing a safety net for old age, which increased significantly life expectancy. Between 1960 and 2010, Italians gained 14 years in life expectancy. Although the increase in life expectancy is not only due to welfare, the success of the Italian public welfare system is evident when comparing mean quality and expectancy of life in Italy with other developed countries with similar or higher GDP per capita relying on privatised welfare systems. Reasons for this are to find in the peculiar nature of privatized old age welfare analysed in chapters II and III of this thesis.

Population ageing, failure to modify significantly the welfare system and the 2008 financial crisis and the 2010 sovereign debt crisis have evolved the Italian welfare system, so that the Italian welfare state is currently using the vast majority of its public resources to subsidize that cohort of the population who is the least at risk of poverty. This is a paradox for the welfare system, whose goal, since its inception, has been to mitigate the dependency of citizens from the market and their family role (Flora 1986). Above-mentioned expectations seem to confirm this paradoxical trend in the medium-to-long

run.

The consequences of population ageing are not merely economic, increasing government expenditure and public debt, but also political and cultural. Some researchers believe that ageing in Italy is so advanced and inter-generational incomes are so unequal, that Italy is doomed to be a gerontocratic society, i.e. a society focused on the needs of retirees and governed by the old. Sociologist Luca Ricolfi in his book "Gentrified Mass Society" (La Società Signorile di Massa, 2019) explains how old age welfare has changed society's and the young's expectations about the job market by not moving resources strategically in the long run. "The society Ricolfi describes is one where most people live off the surplus produced by their elders and the labor of an underpaid and underprivileged migrant class. […] While some cannot help but be unemployed, for many it is a matter of convenience, according to Ricolfi. More often than not for young people, working simply isn't worth it. Indeed, the financial advantage that an Italian worker can expect from having a university degree is half of what it would be in other developed countries. It often makes more sense to live off one's parents' salaries (or pensions) and enjoy the good life than it does to struggle to find a job that wouldn't pay much and would offer little hope of social and economic advancement" (Speciale 2020). According to Speciale and Ricolfi this explains why Italy has the largest number of NEETs in the EU at 24.8% (NEETs meaning "not in education, employment, or training").

In liberal democracies, such as Italy, for successful welfare reforms to take place these must be supported by the majority of the voting population. As mentioned in chapter II, rational citizens vote for the party that ensures then the highest welfare benefits and old age welfare dependant constituencies are on the rise. By considering the whole of the Italian population, in 2019, people over 65 were the 22,8%, but their electoral weight is much larger. Firstly because 16.2% of under-18 citizens cannot vote, and secondly the young voluntarily exclude themselves from the voting process and many abstain voting. For instance, in the 2018 parliamentary elections 35% of voters aged between 18 and 22 who could have voted for the first time, decided not to do so (the national average of abstention was 29.6%). In addition, by law one of the two legislative chambers of Italy with full legislative power, the Senate of the Republic, is deliberately made for the old, meaning that senators must be aged over 40 to be elected and electors must be over 25 to participate. The combination of institutional mechanisms that exclude young voters and their voluntary abstentionism increases gerontocratic aspects of Italian society and decreases the chances for reforms in welfare policies to take place.

The focus of the Italian society for the old and its welfare is reflected in the party's policy proposals.

Magnani (2018) in political parties heading towards the 2018 parliamentary election found no concrete proposal to reform the welfare state in order to make it sustainable. Major Italian parties in 2018 elections urged for a decrease in the retirement age for the elderly, in order for them to hand over their workplace to the young, thereby increasing youth employment statistics. This "early retirement strategy" for labour shedding, applied in the Law number 26/2019, has been already experienced in Italy between 1973 and 1992, resulting in a mushrooming public debt (Barbieri 2018) and further increasing inter-generational inequality. To give an example of the effects of the early retirement strategy, in the 1973-1992 timeframe article 42 of the Decree of the President of the Republic number 1092/1973 (Government Rumor pension reform) awarded civil servants pension annuities after very few years of public contributions (14 years and 6 months for married women with children, 20 years for national civil servants). This law allowed pensions benefits for 400 thousand workers, some of which were aged under 30 when they first started receiving pensions. In 2019 they required 7.5 billion euros in contributions (Barbieri 2018) paid by active workers who, after all the reforms to increase the retirement age started in 1992, will benefit from contributions at best at 65 years of age and frequently must work many more years to start receiving pension benefits.

A final consequence of population ageing on society may be that of decreasing entrepreneurship. According to Edward Lazear (cited in Lo Prete 2015), young workers are less eager to became entrepreneurs in a country in which their age cohort is decreasing. Lazear noted that one of the reasons why the Silicon Valley is so productive and successful is linked to the high population density of young entrepreneurs who could share knowledge and aspirations. The former INPS president, Tito Boeri, has agreed with this thesis, stating: "the demographic decline implies even now fewer businesses. […] Demography counts in the short term, it acts on expectations, its effects on the long run are anticipated by certain behaviours that straight away influence the wellbeing of millions of people" (cited in Golini and Lo Prete 2019, pp. 105-106). This may explain why Italy is currently losing positions in the World Bank's "Doing Business" rankings (Marro 2019).

VI. Can the Italian welfare state be reformed?

The solution for the sustainability of the Italian welfare system is intuitive and has to do with how the state redistributes the resources it collected through taxed. Pro-family fiscal policies, active labour policies and incentives for the young to stay in profitable education and to start working as soon as they wish to do so are the solution though which many European countries managed to increase their fertility rates since the 90s (for instance Germany and France). Public resources may be found in "charitable" pensions and generous intergenerationally unfair pension annuities conceded to oldest

retirees. But in light of the recent Italian economic and societal trends are these reforms politically viable? In Italy 23.4 million voters are registered workers, earn wages and create GDP for them and the rest of the 37.6 million population. The dependency ratio of non-workers of all age cohorts to workers is high and rising, to the point of non-sustainability. The Italian state has managed to contain the effects of this disparity in recent years by increasing public debt and, when cornered by the economic crisis of 1992 and 2010, by increasing the retirement age and decreasing pension benefits of incoming retirees. Yet, these reforms did not significantly increase occupation and productivity, which is the only way a state can guarantee fair pensions, as explained in chapter II.

Galasso and Profeta (2006) suggest that severe ageing reduces the economic incentives to keep social security and that it may lead to the institution of small Beveridgean systems politically supported by middle income citizens. Instead of the unfair PAYG pension schemes, redistribution policies would be based on fixed anti-poverty amounts. However, Italian politics and policies seem to go in the opposite direction, focusing on PAYG safety nets for old age and ignoring labour active and family policies. The reason for this might be in the changing nature of the Italian electorate and society determined by the fact that retirees are increasing, and they play an increasingly important political and financial role in society. The fact that active workers are a minority of the population dooms the country to the highest possible dependency culture, consequently making reforms to welfare possible only in cyclical sovereign debt crisis for financial stability.

To look at the bright side, the young cohorts of the population have been crucial in the 2018 parliamentary election. So much so that the Wall Street Journal explained the 2018 triumph of young populist parties in Italy (particularly the Five Star Movement) as "a youth revolt […] upending Italian politics" that "could be a harbinger of things to come" (Sylvers 2018). Younger cohorts of the population voted massively for the Five Star Movement (FSM) who promised an active labour policy for the unemployed, the so-called "citizen income" (in Italian *reddito di cittadinanza*). Before the "Citizen income" reform (Law number 26/2019), Italy invested in 2017 only 100 euros per citizen unemployed in order for him or her to get back to work, Germany instead invested € 3700, France 1300, Spain 250. The full effects of the "citizens income" are still to be researched, however some researchers and economists have criticised the extent to which this favours occupation and labour productivity, suggesting instead that it will merely create more welfare dependency on the back of active workers (Somma 2019; Borga 2019; De Palo 2020).

Nevertheless, the success of the FSM shows that the young workers and unemployed may still be reactive and decisive in elections. Sadly though, no government has yet been able to significantly

increase productivity and employment levels, supporting the thesis that population ageing and its consequences on old age welfare are not reversable if not in emergency situations for the sake of financial stability. Finally, what seems to be ignored by Italian politics and policies is that financial stability in the long run is only obtainable if public resources are shifted by the government from least productive sectors of the economy to more productive sectors.

VII. The welfare state can be reformed

Population ageing can be governed and shaped in its consequences by state welfare policies. A powerful example in this sense is given by France and its generous family welfare policies. The origins of the French family welfare support date back to the start of the 20th Century. According to demographer Antonio Golini, the French Third Republic started to consider the country's fertility rate a state's affair after the battle of Sedan (Golini and Lo Prete 2019, pp. 150-155). The French government of the time feared that in the event of a new war taking place against the German empire, the German government would take advantage of their population dividend to create large and powerful armies. Since then the country paid close attention to its fertility rates, investing in family welfare policies when needed. In the 1950s more than half of all welfare spending in France was allocated to natalist policies (Martin 2011). In 2017 France invested 2.6% of GDP in family policies, making it one of the most generous countries in the world for family support. Decades of generous family welfare policies and the modernization of policies to include divorced and single-parent families have granted fertility rates atypically high for a developed country (Pison and Héran 2020). Counting on 1.9 children per woman on average, France has the highest fertility level of the EU, the average of the European Union being 1.6.

The French case demonstrates that public investment in family welfare policies is a viable solution to mitigate population ageing and its effects on old age welfare. Italy's strategy to counter the effects of population ageing will not have to be based on military concerns as in the French case (although Simon, 2008, and Ceccorulli, Fassi and Lucarelli, 2017, have recently researched the military implications of ageing for NATO equilibria) but on the struggle for intergenerational solidarity and long term economic stability.

VIII. Conclusion

This chapter has dealt with some of the consequences recent population ageing had and will have on the Italian welfare state, society and economy. Italy is markedly vulnerable to population ageing because 77.2% of the whole national social expenditure is targeted to people aged over 65. In

particular, two major items of expenditure closely linked to population ageing have been examined in detail, pensions and healthcare expenditure. Results show that, although recent reforms have cut government spending on both these items of expenditure, public pensions have increased as a percentage of GDP during and after the start of the 2010 crisis, while healthcare expenditure is expected to slightly increase in the next decades.

Welfare benefits have created a dependency culture in Italian society which is so eradicated no political party dares to address it. The future of the Italian welfare state as population ages seem thus doomed to institutional myopia and conservative policies. The mortal sin of the Italian welfare state debate is that it is focuses on how to divide the national pie society produces, instead it should focus on why that pie is getting smaller and how to increase its dimensions. The result of institutional myopia and short-term political strategies has been the emergence in the 2006-2016 decade of a new class of poor in Italy: the young (18-24) and single parents.

As Hirschman points out (1970), when citizens are dissatisfied with the quality or benefit that a state ensures them, they have three options, viz. loyalty, exit or voice. Translated to the present condition the Italian society, the first option is for the young and for single parents in Italy to accept that they will be the poorest members of the Italian society and live under a worst economic condition compared to their parents and grandparents. Alternatively, they may exit their social context and emigrate to the "core" of Europe, concentrated around Germany, Austria, the Nordic countries and some Eastern European countries that have close economic ties with Germany (Palier, Rovny & Rovny 2018). These countries benefit from fairer welfare systems, and thus higher fertility rates. This second emigration option is very accessible in the European market where the freedom of movement is guaranteed by numerous European directives such as the Services in the Internal Market Directive (2006) and its further amendments. The third option may be the more interesting as well as alarming, i.e. that the young in Italy accept the fact that they will have to fight for their social rights, just as the workers in the 19th century had to fight for theirs.

Chapter V: Conclusion

I. Population ageing and the welfare state, a summary

This thesis has dealt with some consequences of population ageing for the welfare state and national economies. Population ageing is part of the final stages of the demographic transition started with the industrial revolution, and is connected with industrialization, post-industrialization, urbanization, the emancipation of women and the birth of the welfare state. In developed countries, the sharp decrease

in total fertility rates and the increase in life expectancy have first standardized the size of the different demographic cohorts, and then reversed the shape of population pyramids. Because of population ageing, in some countries for the first time in the history of mankind people aged over 65 are more numerous than those aged under 15. This landmark event in population ageing has been first registered in Italy in 1995 and in 2020 is predicted to involve 35 developed countries.

Although population ageing is a consequence of economic and social development, welfare provisions shape the quantity and quality of ageing. Developed countries allocate a large part of government spending to welfare provisions in healthcare and pensions. Indeed, one of the aims of the development of the welfare state (especially in Europe) is to provide a safety net for the consequences of ageing on labour productivity. By doing so, the welfare state redistributes wealth from active workers to retirees following a progressive income tax. The redistribution process enacted by the state entails that the population ageing phenomenon concerns the wellbeing of citizens of all ages, including the youngest. As population ages, the state is under pressure to provide a growing number of retirees with old age welfare benefits while the number of active workers to draw contributions from are decreasing. Achieving higher employment and productivity rates would alleviate the effects of population ageing. However, as the electorate in liberal democracies is turning grey, it becomes politically inconvenient for decision-makers to redistribute public financial resources in order to boost employment and productivity and grant welfare sustainability in the long run.

After sketching the demographics of world population ageing in Chapter I, the thesis assesses the different combinations of private and public financed welfare in pension expenditure (Chapter II) and healthcare (Chapter III) and the consequences ageing has on welfare provisions. The privatization of welfare is not a desirable solution for long term welfare sustainability and fairness. Although privatization of welfare avoids the increase in government spending and public deficits, it does so by merely transferring ageing costs to individuals and families, thus increasing the effects of inequalities, disabilities and morbidity. Moreover, the financial burden of care in old age is put over women's shoulders to carry. Therefore, a likely outcome of privatized old age welfare is an increase in the gender pay gap and a consequent further decrease in employment and productivity rates. On the other hand, failure to reform the welfare state in order to support the young active workers and single parents have increased poverty rates among these age cohorts and prompted their dependency on old age welfare benefits for financial support.

An example of how population ageing may change the old bismarckian welfare systems is given by the Italian welfare state (Chapter IV). In Italy, population ageing, government political decisions and

the 2010 sovereign debt crisis resulted in the current welfare state provisions that paradoxically foster inequality, because they redistribute wealth from unprivileged active workers to richer retirees. The intergenerational cultural and political dependency that results from this welfare arrangement makes the whole system both difficult to reform and unsustainable in the long run. Instead, investment in family welfare policies and the encouragement of female employment can increase fertility rates and guarantee fairer and inclusive PAYG pension systems and NHS services.

The key to success for political entrepreneurs and policy makers and advisors assessing this field is to have in mind that the old, the young and active workers are all on the same boat, if the socio-economic condition of one of these three population cohorts worsens the effects in the long run will have an impact on the entire population.

II. *Post Scriptum*: Will the Coronavirus stop population ageing and its consequences?

The writing of this thesis coincided with the beginning and spread of the COVID-19 pandemic, also known as coronavirus pandemic. The pandemic has spread throughout the entire world and caused global social and economic disruption. COVID-19 has infected individuals of all ages, but "the likelihood of getting infected is higher among older population, on various medical conditions, such as, diabetes, cardiovascular diseases, hypertension, cancer and chronic respiratory diseases" (Verma, Vishwakarma, Verma, Nath and Khan 2020, p. 2, using data from Wu and McGoogan, 2020, and Wang and Zhang 2020). Furthermore, the great majority of death caused by coronavirus were registered in people aged over 65. Against any alarmist standpoint it is worth noting that all deaths from internal causes (that is, excluding accidents, murders, overdoses and the like) are similarly increasingly deadly among the elderly (Fox 2020).

According to demographer Massimo Livi Bacci nations with older populations, such as Italy, are more vulnerable to coronavirus (Inghirami 2020). The vulnerability results from both the pressure put on healthcare by the COVID-19 pandemic and the economic crisis that it produced. Extensive research has yet to be made on the full effects of the pandemic for both national and international demographics and economics. Future research will uncover the long-term demographic and economic effects of different national policies enacted to prevent the spread of COVID-19. However, some early data from some countries highlights the fact that the pandemic will increase the welfare sustainability risks linked with population ageing, instead of hindering them. In economic terms, Anke Hassel (2020) using data from British Institute for Fiscal Studies and the German Institute for Economic Research found that the economic crisis caused by the COVID-19 has hit the young,

women and low paid workers the hardest in the U.K. and in Germany, and it predicts to continue doing so in the future. On the other hand, Istat president Gian Carlo Blangiardo's demographic research (2020, p. 14) revealed that the COVID-19 pandemic will slow down but not stop demographic ageing in Italy even in the worst-case scenario.

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Italian summary

Capitolo I: Introduzione

La popolazione globale sta invecchiando. L'invecchiamento della popolazione è il risultato del continuo aumento della longevità e della diminuzione del tasso di fecondità. In seguito a questa transizione demografica in atto, è probabile che nei prossimi decenni, per la prima volta nella storia dell'uomo, ci saranno più persone anziane che giovani nel mondo (WHO 2010). L'invecchiamento della popolazione avviene più rapidamente negli stati economicamente sviluppati, tuttavia è un fenomeno che riguarda quasi tutti i continenti. Nel 2050 l'Africa sarà l'unico continente che potrà ancora contare sul dividendo demografico, cioè la crescita economica che, sul piano contabile, può derivare dall'aumento nella quota di popolazione in età lavorativa.

La mia tesi di laurea ricerca le conseguenze dell'invecchiamento della popolazione per il *welfare state* degli stati più sviluppati, analizzandone le conseguenze per i diversi sistemi pensionistici e di assistenza sanitaria. Infatti, un'ampia fetta della spesa pubblica dei paesi sviluppati è usata per finanziarie programmi pubblici pensionistici e sanitari, direttamente influenzati dall'invecchiamento demografico. I capitoli II e III mettono in luce le conseguenze dell'invecchiamento della popolazione per la spesa pubblica pensionistica e sanitaria dal punto di vista teorico. In questi capitoli si affronta il tema della privatizzazione del welfare e la sua adeguatezza nel risolvere i problemi della sostenibilità del welfare state nel lungo periodo causati dall'invecchiamento demografico. Il capitolo IV evidenzia le conseguenze dell'invecchiamento della popolazione per il welfare state italiano, e conseguentemente per la sua economia, politica e società.

Capitolo II: i diversi sistemi pensionistici e l'invecchiamento della popolazione

Una voce di spesa dei bilanci pubblici dei paesi economicamente più sviluppati che rischia di aumentare in maniera significativa a cause di un forte invecchiamento della popolazione, è la spesa pensionistica. Le pensioni sono rendite vitalizie pagate dai lavoratori attualmente attivi a quei membri della comunità nazionale assicurati da parte dello stato, o da appositi enti pubblici o privati, al raggiungimento di una determinata età e in relazione agli anni di servizio prestati, oppure al verificarsi di altre condizioni predeterminate, come il decesso o l'invalidità. Diverse nazioni affidano il management dei trasferimenti monetari che avvengono tra contribuenti e pensionati a diverse combinazioni di istituzioni pubbliche e fondi pensione privati. Dopo una breve analisi storica, questo capitolo analizza le differenze tra diversi modelli teorici di sistemi pensionistici e le condizioni necessarie affinché questi modelli possano garantire pensioni eque a lavoratori di diverse generazioni. Infine, il capitolo analizza le conseguenze dell'invecchiamento della popolazione per la spesa

pensionistica dei diversi sistemi elencati.

Le prime pensioni pubbliche sono state istituzionalizzate dal cancelliere prussiano Otto Von Bismarck nel 1889 come una forma di assicurazione obbligatoria sul reddito capace di garantire un'entrata economica ad ogni lavoratore durante gli ultimi anni della sua vita. Il modello previdenziale bismarchiano prevede pensioni d'anzianità secondo uno schema retributivo finanziate da contributi pagati da lavoratori e datori di lavoro. Lo schema di calcolo retributivo istituito da Bismarck nel 1889 ha influenzato molti sistemi pensionistici pubblici europei e il sistema pensionistico statunitense, istituito dal presidente Roosevelt nel 1935. Nel Regno Unito il sistema previdenziale ha invece seguito un altro approccio, detto "modello Beveridge". L'economista William Beveridge sosteneva nel suo influente Report del 1942, la necessità di creare un *welfare state* basato sull'unico obbiettivo di eliminare la povertà. Questa differenza tra modello bismarchiano e modello di Beveridge evidenzia come sin dalla loro istituzione i sistemi pensionistici possano avere obbiettivi e metodi completamente diversi.

Sergio Nisticò nel suo libro *'Essentials of pension economics'* (2019) descrive quattro sistemi pensionistici archetipici, valutandone la loro "equità" (*fairness)* misurata in base al tasso di rendimento interno che un lavoratore ha quando investe una parte del suo stipendio nel sistema pensionistico in forma di contributi. I sistemi pensionistici sono divisi da Nisticò da due elementi. La prima divisione avviene tra sistemi pensionistici a capitalizzazione (*fully funded)* e sistemi fondati sulla ripartizione dei contributi (*pay-as-you-go*). Nel primo caso ogni generazione ha il proprio fondo pensione a cui ciascuno contribuisce nel corso della sua attività lavorativa attiva, e da cui ciascun lavoratore potrà attingere una volta andato in pensione. Nel sistema a ripartizione invece, ogni anno l'ente previdenziale predisposto distribuisce tutti i contributi dei lavoratori attualmente attivi ai pensionati che lo richiedono. La seconda divisione avviene tra pensioni assegnate attraverso uno schema retributivo, cioè basate sullo status finanziario del lavoratore, e quelle contributive, conferite in base alla quantità di contributi che un lavoratore ha pagato nel corso della sua vita attiva.

Attraverso queste differenze emergono le caratteristiche dei diversi sistemi pensionistici vigenti nei paesi economicamente sviluppati. I sistemi pensionistici pubblici sono finanziati da schemi a ripartizione e possono essere di natura retributiva (NDB) o contributiva (NDC). Invece, nei sistemi pensionistici privati (chiamati FDC) ad ogni lavoratore è associato un conto personale in un fondo pensione. I ricavi del fondo pensione privato sono generati sia dai contributi dei lavoratori attivi iscritti al fondo pensione sia dai ricavi generati dall'investimento del capitale del fondo pensione nel mercato finanziario (generalmente in bonds con i rendimenti più sicuri, come ad esempio titoli di

stato). In tutti i sistemi pensionistici "l'equità" intergenerazionale del sistema è basata sul numero dei lavoratori che pagano i contributi e l'ammontare di questi contributi. Per questo il rendimento per i lavoratori di ogni sistema pensionistico è influenzato dal teorema di Samuelson-Aaron, secondo cui il tasso di rendimento interno assegnato a ciascuna coorte demografica di lavoratori è determinato dal tasso di crescita delle retribuzioni complessive, ottenuto sommando i tassi di crescita delle retribuzioni individuali e dell'occupazione.

Nei sistemi pensionistici pubblici il teorema di Samuelson-Aaron è chiaramente valido, perché in questi sistemi il numero di contribuenti e il loro reddito influiscono direttamente sull'ammontare di contributi versati all'ente pubblico previdenziale. Il teorema è anche valido per i sistemi pensionistici privati, anche se più velatamente. Infatti, nei sistemi pensionistici privati, l'ammontare delle pensioni dipende in parte dai ricavi generati dall'investimento del fondo-pensione sui prodotti del mercato finanziario. I sostenitori della privatizzazione del welfare sostengono che affidarsi al mercato finanziario sia una valida soluzione per garantire contributi pensionistici a una crescente percentuale della popolazione. Tuttavia, Cesarotto (2005) ha messo in luce come i manager dei fondi-pensione privati scelgono di investire nei prodotti finanziari con rendimenti più sicuri ed affidabili, per non rischiare l'insolvibilità del proprio fondo pensione e le sue conseguenze sociali. Infatti, i fondi pensione privati prediligono l'investimento in titoli di stato. In questo modo la spesa pensionistica ricade sulle casse dello stato, come nei sistemi pensionistici pubblici, anche se indirettamente attraverso il mercato finanziario. In ultima analisi, il rendimento dei titoli di stato e in generale l'andamento dei mercati finanziari dipende dal tasso di crescita della somma di retribuzioni e occupazione, e quindi anche i sistemi pensionistici privati sono influenzati sensibilmente dal teorema di Samuelson-Aaron.

Con l'invecchiamento della popolazione il numero dei lavoratori attivi diminuisce. Quindi per garantire l'equità intergenerazionale ai sistemi pensionistici nazionali è necessario registrare un aumento della produttività, e di conseguenza delle retribuzioni e dei contributi. Anche se nuovi shock tecnologici capaci di aumentare la produttività sono possibili e sono avvenuti in passato (Rauhut 2012), alcuni (Atella and Carbonari 2017; Morosini 2013; Speciale 2020) hanno messo in dubbio la capacità di un paese con una popolazione in avanzato stato di invecchiamento di investire in incentivi alla produttività. Quando si verifica in uno stato un invecchiamento demografico, la conseguenza più probabile per i lavoratori di ciascuna generazione sotto qualsiasi sistema pensionistico è di rivedere al ribasso le loro aspettative sul tasso di rendimento interno dei loro contributi previdenziali, e accettare di ricevere meno in pensione di quanto hanno ricevuto i loro genitori e i loro nonni, data la stessa quantità di contributi.

Capitolo III: l'assistenza sanitaria e l'invecchiamento della popolazione

La salute e l'assistenza sanitaria a prezzi accessibili sono diritti umani, riconosciuti sia dalla costituzione dell'Organizzazione Mondiale della Sanità sia dall'Agenda 2030 dell'ONU per lo sviluppo sostenibile (target 3.8). Attraverso il sistema sanitario viene fornita assistenza ai malati, alle persone fisicamente e mentalmente fragili, invalide e non autosufficienti. Diverse combinazioni di sanità pubblica e privata forniscono assistenza in diversi stati. Questo capitolo compara i diversi sistemi sanitari esistenti nei paesi economicamente più sviluppati in base a quattro obbiettivi (Palier 2010): l'universalità dell'accesso alle cure, la qualità del trattamento, i costi sostenibili e, infine, la capacità di rispondere ai bisogni dei malati. Il capitolo poi analizza le conseguenze dell'invecchiamento della popolazione per i diversi sistemi sanitari.

Bruno Palier (2010) ha diviso i paesi in tre categorie sulla base della loro assistenza sanitaria. Nella prima ci sono i paesi che hanno un sistema sanitario nazionale (SSN), come i paesi scandinavi, l'Italia, la Spagna, il Regno Unito e parzialmente la Grecia, il Canada, l'Australia e la Nuova Zelanda. Nel SSN, l'assistenza sanitaria è fornita per lo più dalla sanità pubblica, mentre la sanità privata è marginale, fornendo cure mediche residue e complementari. L'accesso all'assistenza sanitaria è gratuito in tutti i suoi aspetti per tutti. Gli stati che utilizzano il SSN offrono la più alta copertura sanitaria al mondo, coprendo circa l'80% delle spese mediche medie totali. Il sistema può essere centralizzato o capillare nel territorio. Questo sistema è finanziato dal bilancio generale dello stato e ha dimostrato, a parità di risultati medici, di essere il sistema economicamente più conveniente. Nonostante ciò, la poca libertà lasciata ai pazienti nella scelta dei loro medici curanti e il potere ridotto che questi hanno nella decisione delle prescrizioni mediche, induce i pazienti a preferire i sistemi basati sull'assicurazione sanitaria pubblica presenti in altri paesi (Euro Health Consumer Index 2018).

La seconda categoria è quella dei paesi con sistemi sanitari basati su mutue e assicurazioni pubbliche, in cui le professioni sanitarie sono liberalizzate e in competizione tra loro; tuttavia il costo delle spese mediche di tutti i cittadini è parzialmente coperto da un'assicurazione sanitaria obbligatoria garantita dal datore di lavoro o dallo stato, attraverso i contributi pagati dai lavoratori attivi. Questo sistema vige in Germania, Francia, Austria, nel "Benelux", e in parte in Giappone. In questi sistemi il paziente può liberamente scegliere da quale medico essere visitato (inclusi gli specialisti) e i medici possono liberamente scegliere il costo di ogni loro prestazione. Lo stato garantisce a tutti l'accesso alle cure mediche attraverso sussidi governativi disponibili per i ceti meno abbienti della popolazione. Il sistema ha un costo più elevato per lo stato del SSN perché finanzia anche visite e prescrizioni non sempre necessarie.

Infine, la terza categoria è quella dei paesi con sistema sanitario "liberale", cioè basato su una preponderanza del sistema sanitario privato sul pubblico, quest'ultimo attivo solo sulle persone più povere, anziane e invalide, oppure garantito a cittadini con meriti civili o militari. Il sistema è in vigore negli USA e in parte in alcuni stati dell'America latina e dell'Est Europa. L'evidenza empirica dimostra che il sistema sanitario liberale è il peggiore nel raggiungere la copertura sanitaria universale e sono il più costoso da mantenere. Inoltre, i principali indicatori della condizione di salute della popolazione (l'aspettativa di vita, la mortalità infantile e i potenziali anni di vita perduti) registrano risultati molto inferiori in quest'ultimo sistema sanitario rispetto ai primi due. In generale, sommando i risultati sanitari dei diversi sistemi e il loro costo per la fiscalità generale emerge la supremazia della socializzazione della gestione sanitaria rispetto alla liberalizzazione (WHO healthcare rankings 2000; the Commonwealth Fund 2017; U.S. News 2020; The Guardian 2016; the Hamilton Project 2020).

Le implicazioni dell'invecchiamento della popolazione per i diversi sistemi sanitari sono controverse. Le spese sanitarie aggiuntive dovute ai cambiamenti demografici saranno più alte nei paesi che pagano di più per l'assistenza sanitaria, per esempio negli USA, in Francia, Germania e Norvegia. L'assistenza sanitaria agli anziani è sempre più costosa, in quanto si basa su uno sviluppo tecnologico crescente e costoso, e su un elevato numero di prodotti farmaceutici. I progressi in medicina hanno ridotto il numero e l'intensità delle malattie croniche gravi, ma hanno comportato un aumento di quelle più lievi, e di conseguenza di costose cure a lungo termine (Atella e Kopinska 2014). Tuttavia, i ricercatori non prevedono che l'invecchiamento della popolazione causerà una crisi economica imminente a causa dell'aumento dei costi sanitari. Questo perché attualmente le fasce più anziane della popolazione non sono quelle che richiedono il maggior numero di spese sanitarie. Infatti, nei paesi più industrializzati il tasso di utilizzo dell'assistenza sanitaria raggiunge il valore massimo intorno agli 80 anni di età, e non in seguito (Rechel et al. 2009).

Infine, il tipo di assistenza sanitaria cambia con l'invecchiamento della popolazione, e i sistemi sanitari devono adeguarsi per evitare pesanti conseguenze economiche. La prima riforma necessaria è l'aumento dell'assistenza pubblica a lungo termine (in inglese *long-term care,* o LTC), comprese le case di cura, le strutture abitative LTC e l'assistenza domiciliare. Può essere necessaria una nuova formazione medica per rispondere alla comorbidità, cioè l'avere più di una malattia o condizione patologica contemporaneamente, situazione molto frequente negli anziani. Della generazione "baby boomers" nata tra il 1946 e il 1964, il 60% presenterà più di una condizione patologica cronica simultaneamente entro il 2030 (Garza 2016). Un'ultima riforma politica disponibile per evitare eccessive pressioni fiscali dovute all'invecchiamento della popolazione è aumentare gli investimenti pubblici sulla prevenzione delle comorbidità croniche.

Capitolo IV: il welfare state italiano e l'invecchiamento della popolazione

L'Italia è il secondo paese più vecchio del mondo (dopo il Giappone) e il più vecchio d'Europa. Negli ultimi anni l'invecchiamento è stato particolarmente veloce. Nel 1980 i giovani under 20 erano 17 milioni mentre quelli over 60 10 milioni. Nel 2015 queste cifre si sono praticamente invertite poiché i giovani under 20 erano 10 milioni, e gli over 60 17 milioni. Anche se l'Italia è in uno stadio molto avanzato di invecchiamento demografico, altri stati economicamente sviluppati stanno invecchiando velocemente. Per questo studiare il caso italiano in questo ambito è di particolare interesse per i ricercatori delle scienze sociali. Infatti, nel 1995 gli italiani sono diventati la prima comunità nazionale in cui è più facile imbattersi in un cittadino con più di 65 anni che in un bambino con meno di quindici. Nel 2015 questo indicatore dello "storico capovolgimento delle popolazioni" è stato registrato in 30 paesi (Chamie 2016, in Golini e Lo Prete 2019, p.25). Secondo le previsioni, nel 2020 saranno 35 i paesi in questa situazione, nel 2030 56. Questo capitolo quindi mette in luce gli effetti economici, politici e sociali dell'invecchiamento della popolazione italiana.

Gli effetti dell'invecchiamento della popolazione sono particolarmente rilevanti in Italia perché il 77,2% della sua spesa pubblica totale per il welfare è destinato ai cittadini over 65. L'aumento di tale spesa può portare una pressione significativa sulle casse dello stato. La soluzione puramente macroeconomica al bisogno di garantire una sostenibilità a lungo termine del *welfare state* italiano, è quella di trasferire le risorse pubbliche disponibili alle coorti demografiche più produttive, in modo che queste possano poi finanziare, attraverso i loro contributi, il crescente bisogno di welfare di una popolazione più anziana. Al contrario, la privatizzazione del *welfare state* italiano non risolverebbe i problemi legati alla sua insostenibilità, per i motivi spiegati nei capitoli II e III. Inoltre, l'invecchiamento demografico non ha solo conseguenze economiche ma anche conseguenze politiche. In una società in cui una fetta importante della popolazione, e quindi degli elettori, dipende economicamente dall'assistenza finanziaria pubblica, diventa sconveniente per i partiti politici proporre riforme che dirottino le risorse pubbliche in altre direzioni, e questo per motivi di tatticismo elettorale.

Il declino demografico in Italia è legato all'aumento dell'aspettativa di vita e ai bassi tassi di fecondità della sua popolazione negli ultimi anni. L'Italia è il quarto paese in cui si vive più a lungo al mondo (circa 83 anni in media) e il primo in Europa, mentre il tasso di fecondità totale (TFT) è fermo a 1,32 nati vivi per donna nel 2018, leggermente superiore al minimo storico di 1,19 registrato nel 1995, e decisamente inferiore al TFT di 2,1 necessario perché la popolazione sia stabile numericamente nel tempo. Dal momento che negli anni 60 e 70 il TFT era decisamente superiore a quello attuale e dei

decenni immediatamente successivi (nel 1964 era di 2,7 nati per ogni donna), è inevitabile che nei prossimi decenni la distribuzione della popolazione presenterà un aggravamento dell'asimmetria attuale dovuta a una maggiore presenza in termini assoluti e relativi di cittadini anziani. Il tasso netto di migrazione positivo ha permesso di rallentare l'invecchiamento demografico, ma non di fermarlo.

Una prima conseguenza del declino demografico italiano è economica, e riguarda l'aumento della spesa pubblica in welfare, dovuta in particolar modo all'aumento della spesa pensionistica. Infatti, mentre nel 2007 il rapporto pensioni/PIL si attestava sul 13,3%, nel 2018 questo è aumentato al 15,1%. Il costo delle pensioni rispetto al PIL nei prossimi decenni è incerto poiché diverse previsioni dissentono sui tassi di occupazione, produttività e fecondità. Secondo le previsioni Istat, nel 2044 il rapporto pensioni/PIL si attesterà sul 16,2%, mentre secondo i dati Eurostat sarà il 18,4%. Entrambe le previsioni sono ottimistiche per il Fondo Monetario Internazionale, che invece prevede un aumento della spesa pensionistica pubblica fino al 20,3% del PIL nel 2040. L'aumento della spesa pensionistica avviene perché il numero di richiedenti aumenta, mentre il tasso di crescita delle retribuzioni complessive, e quindi dei contributi, diminuisce. Come spiegato nel capitolo II, in qualsiasi sistema pensionistico (retributivo e contributivo, pubblico o privato) l'equità intergenerazionale dipende dalla somma di produttività e occupazione. Essendo entrambi questi indicatori macroeconomici in stagnazione negli ultimi decenni, il declino demografico ha comportato alte tasse sul lavoro e un alto debito pubblico. Inoltre, il carico finanziario sui lavoratori attivi è amplificato dalla natura assistenziale del sistema pensionistico italiano in cui la metà dei beneficiari riceve pensioni pubbliche per motivi di povertà, invalidità, reversibilità, o di guerra (Brambilla 2020). L'impatto dell'invecchiamento della popolazione sulle tasse sul lavoro, e quindi sui consumi, presenta un fattore di instabilità economica che le recenti riforme del sistema pensionistico del 1992, 1995, 2004, 2011 e 2019 non sono state in grado di evitare.

Il sistema sanitario italiano sarà influenzato dall'invecchiamento della popolazione, tuttavia, come spiegato nel capitolo III, l'invecchiamento aumenta solo leggermente le spese sanitarie necessarie. Inoltre, il modello del Sistema Sanitario Nazionale è stato efficace nel garantire alti livelli di assistenza sanitaria nonostante i tagli alla spesa pubblica in sanità. Tra il 2008 e il 2019 la spesa sanitaria italiana in rapporto al PIL è diminuita dal 7,1% al 6,6%. Il MEF (2018) prevede un leggero aumento della spesa sanitaria, che raggiungerà il 7,7% del PIL nella seconda metà del secolo. Secondo l'Ufficio Parlamentare di Bilancio (2019), "per un paese come l'Italia, con elevato debito pubblico, il modello prescelto di gestione della sanità, ovvero il servizio sanitario pubblico, oltre a favorire una maggiore equità, rappresenta uno strumento essenziale per controllare i costi, che in altri sistemi, basati su mutue e assicurazioni pubbliche (ad esempio, Francia o Germania) o su una preponderanza

del privato (Stati Uniti), tendono a crescere con ritmi molto più veloci, portando spesso a una spesa pubblica più alta" (p. 4). Più preoccupante è l'aumento previsto dell'assistenza a lungo termine (*long-term care* o LTC*)* dovuta all'invecchiamento demografico. La spesa pubblica in quest'ambito è aumentata dal 2007 (1,4% del PIL) al 2017 (1,7%), e il MEF ne prevede un ulteriore aumento fino al 2,6% del PIL nel 2070. Molto del peso dell'aumento di domanda di LTC ricade sulle donne, sulle quali è più alta la pressione sociale per l'adempimento del loro al ruolo familiare, riducendo così il loro orario di lavoro, il reddito e, quindi, i contributi alle pensioni e all'assistenza sanitaria.

La crisi finanziaria globale del 2008 e la crisi del debito pubblico del 2010 hanno cambiato la distribuzione della ricchezza tra le diverse coorti demografiche della popolazione italiana. Infatti, le fasce più giovani della popolazione, quelle meno tutelate dal welfare, hanno subito una maggiore riduzione del reddito rispetto a quelle più anziane più tutelate dall'assistenza pubblica. Questo rende insostenibile il sistema di welfare nel lungo periodo. Secondo una ricerca della Banca D'Italia (2018) nel decennio 2006-2016 l'incidenza delle persone a rischio di povertà e finanziariamente povere "è raddoppiata quasi al 30%, tra i nuclei familiari con capofamiglia con al massimo 40 anni, è aumentata di soli 5 punti percentuali tra quelle tra i 41 e i 65 anni ed è scesa di 4 punti per quelle più anziane" (p.13). Inoltre, la sostenibilità del welfare italiano è ulteriormente minacciata dal basso investimento pubblico in istruzione, infrastrutture e politiche familiari. Gli investimenti in questi settori aumenterebbero la disponibilità finanziaria delle famiglie più giovani, ed conseguentemente i tassi di fecondità. Invece, l'attuale sistema di welfare focalizzato sui cittadini anziani fa sì che nel 52,2% dei nuclei in cui sono presenti sia pensionati sia altri membri, più del 50% del reddito deriva dai primi (Balduzzi 2020).

Le conseguenze dell'invecchiamento della popolazione non sono solo economiche. Alcuni ricercatori ritengono che l'invecchiamento in Italia sia così avanzato e che i redditi intergenerazionali siano così disuguali, che l'Italia è destinata ad essere abitata da una società gerontocratica, cioè una società socialmente e politicamente incentrata sui bisogni dei membri più anziani della popolazione (Atella and Carbonari 2017; Morosini 2013; Ricolfi 2019; Speciale 2020). Il fatto che nessun partito politico abbia presentato delle proposte concrete durante le elezioni politiche del 2018 per rendere il *welfare state* italiano sostenibile a lungo termine conferma questa ipotesi (Magnani 2018). Le tendenze gerontocratiche della società italiana sono amplificate dall'elevato tasso di astensionismo politico dei cittadini più giovani e dalla struttura istituzionale italiana. Infatti, nelle elezioni politiche del 2018, il 35% dei cittadini di età compresa tra i 18 e i 22 anni che avevano facoltà di votare alle elezioni parlamentari per la prima volta, hanno scelto di non farlo. Inoltre, in una delle due camere legislative italiane, il Senato della Repubblica, i cittadini maggiorenni più giovani sono esclusi per legge dal

votare e dall'essere eletti. La combinazione di uno scarso stanziamento di risorse per le fasce della popolazione più a rischio di cadere in povertà (cioè i giovani, le famiglie monoparentali e le donne con figli), della distribuzione iniqua degli effetti delle crisi del 2008 e 2010, e dell'assetto istituzionale italiano hanno favorito una dipendenza intergenerazionale non sostenibile nel lungo termine, e difficile da riformare, a causa del rapido invecchiamento demografico.

Capitolo V: Considerazioni conclusive

L'invecchiamento demografico può minacciare la sostenibilità del welfare state, e quindi della spesa pubblica, attraverso l'aumento della spesa pensionistica e sanitaria. Alcuni investimenti pubblici possono attenuare l'effetto dell'invecchiamento sulle casse dello stato, in modo da renderlo sostenibile a lungo temine. Per esempio, gli investimenti dello stato francese in sussidi pubblici a sostegno della natalità inizianti all'inizio del ventesimo secolo, hanno permetto alla Francia di avere il più alto tasso di fecondità dell'UE (a 1,9 nati per donna, la media UE è di 1,6) (Claude 2011; Pison e Héran 2020). Il caso francese mostra che riforme mirate del welfare state possono disinnescare gli effetti negativi dell'invecchiamento della popolazione per l'economia, e garantire la sostenibilità a lungo termine delle finanze pubbliche. Al contrario, la privatizzazione del welfare può avere effetti controproducenti. Infine, future ricerche sveleranno gli effetti a lungo termine sul *welfare state* della crisi economica causata dalla recente pandemia dovuta al COVID-19. Alcuni primi dati suggeriscono che la crisi economica accentuerà la disparità finanziaria intergenerazionale, accrescendone gli effetti negativi sull'economia e sulla sostenibilità delle finanze pubbliche. La ricerca di soluzioni e strategie sociali, economiche e politiche, a questo problema sarà cruciale per l'Italia nei prossimi mesi e anni.