

## **AGING AND PENSIONS IN ITALY: HIGHLIGHTING REGIONAL DISPARITIES**

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### **1. Introduction**

Aging is a key long-term demographic challenge that is expected to threaten the viability of pension and health systems over the next future in Europe. Population aging in Italy is well underway. In 2017 the proportion of individuals over 65 years old was around 22.3% and according to the Aging Index (AI) there were 165 over 65 per 100 individuals between 0 and 14 years old. The Italian National Institute of Statistics (ISTAT) estimates that population aged 65 and over is expected to increase to 33% by 2050, while the AI will reach the value of 262.

Without proper responses, population aging is likely to affect the welfare state by menacing sustainable development and inclusive growth since it obstacles the state's capacity to meet the needs of elders without compromising the capability of future generations to meet their own.

It is not possible to know exactly which the future consequences of population aging will be, as a unique situation, no historical examples are available to lead policy and planning. However, without clear interventions, aging might have some important implications on modern societies affecting age-related government budgets, living standards, future growth and sustainability of public welfare systems.

The share of working-age beneficiaries will shrink reducing expenditure dedicated to unemployment benefits or social assistance. Moreover, the growing number of elders will exert a strong pressure not only on future public finances rising expenditures on pensions, health and long-term care but also on incomes, provision of other public social services (Bloom *et al.*, 2015) and intergenerational solidarity. Responses to aging will require several reforms to both public policy and business practices (Bloom *et al.*, 2010).

Italy is becoming one of the oldest countries in the world while its economically active population is shrinking. Despite recent reforms acted, such an unstoppable trend is likely to place significant pressure on economic growth and public expenditures challenging public policy. This paper aims at answering the following

research questions: which indicators more accurately measure the aging burden? does the Old-Age Dependency Ratio (ODR) illustrate the implications of population aging? are there important territorial differences (NUTS1 & NUTS2 levels) in terms of aging and public pension expenditures? is it possible to identify changes following pension reforms that have recently been acted in Italy? Does the implementation of mixed policies improve results? which will be the future scenario?

Data are drawn from demographic, labour force, and pension system statistics available at the regional level (NUTS2) from the Italian National Institute of Statistics (ISTAT). The analyses reply Bongaarts' calculations (2004) to estimate the pensioner ratio (PR), the pensioner per worker ratio (PWR), the benefit ratio (BR) and, finally, the public pension expenditure ratio (PER).

The structure of the paper is as follows. Section 2 presents a brief description of the evolution and future scenarios of population aging in Italy. Section 3 is dedicated to the analysis of pension expenditure and simulates its evolution under a mixed policies scenario. The last section is dedicated to conclusions and some policy recommendations.

## **2. Aging in Italy: evolution and projections**

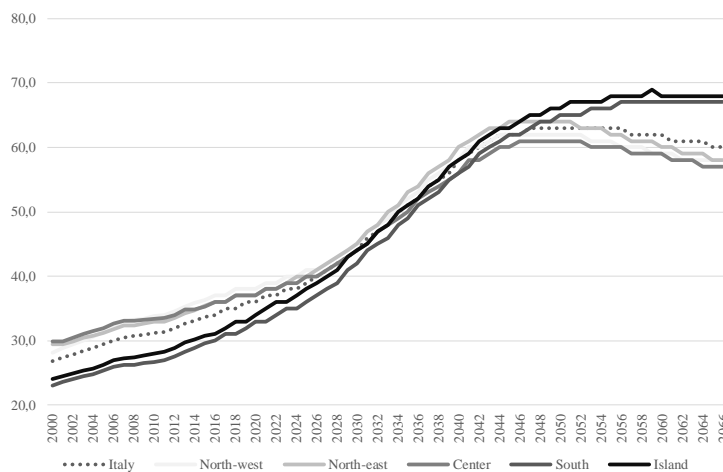
In Italy population aging is expected to significantly grow during the next decades because baby boomers are growing older. As shown in Figure 1 the ODR has increased more than thirteen points between 1990 and 2017 and it will continue growing doubling its value in 2066. In the last part of the figure the curves diverge indicating: first, that the youngest macro-areas will become the oldest (South and Island) and, second, in Southern Italy the ODR will still grow while will start decreasing in the North and Center around 2050.

The trend followed by the aging process hides important territorial differences that emerge only when disaggregating the ODR at the regional level (Figure 2). Almost half of regions are above the ODR of the country in 2016, being Liguria (47), Friuli-Venezia-Giulia (41), Piemonte (40), Toscana (40) and Umbria (40) the oldest five. After fifty years, estimations show Sardegna (77), Basilicata (76), Molise (72) and Puglia (70) as the oldest regions. The fastest growth will be recorded in Basilicata where the ODR will be more than 2.4 times higher in 2066 than in 2016. Instead, the Liguria's pace of increase will be the slowest.

Even if the ODR illustrates the relative weight of population above 65 years old over those aged between 15-64, it does not accurately measure the real aging burden that societies might carry. This is so because the number of individuals

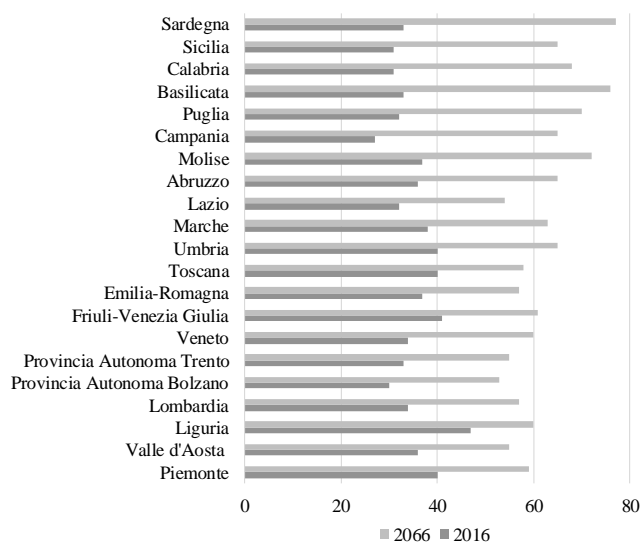
aged 65 and over are always lower than the number of pensioners and population aged 15 to 64 is higher than the real number of workers.

**Figure 1 – Italy. Evolution of the Old Age Dependency Ratio (ODR) and projections (central scenario). Years 2000-2066.**



Source: Own elaboration, ISTAT data.

**Figure 2 – Italy. Old Age Dependency Ratio (ODR) by regions (NUTS 2). Years 2016 & 2066.**



Source: Own elaboration, ISTAT data.

Considering such limits, Bongaarts (2004) suggests the ratio of pensioners to workers (PWR) as a more sensible and accurate indicator of the aging burden.

$$PWR = ODR * PR/ER \quad (1)$$

Where the Pensioner Ratio (PR) in (1) is computed as the ratio between the number of pensioners and the number of individuals aged 65 and over.

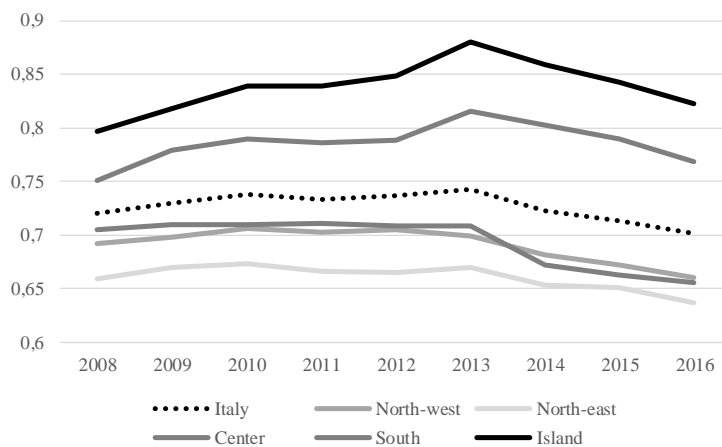
If the ODR and the PWR are confronted (this last at Figure 3), it is evident the rise of two completely different trends. The ODR shows a continuous growing trend between 2008 and 2016 (Figure 1) and two diverse profiles: the youngest Southern and the oldest North and Center. The evolution of the PWR also displays two different Italy's, with the Island and the South as the areas with the highest pensioner-worker ratio. The figure also reveals a clear cut-off from 2013 on when the PWR starts decreasing. This observed reduction could be reflecting the *Fornero effect*, the most recent reform acted by the Italian government.

Since 1992, policymakers have been responding to budget sustainability caused by population aging in a context of increasing economic uncertainty and austerity packages. The Italian pension system started then a long transformation process from a single-pillar towards a multi-pillar structure. The last reformed acted in 2011 has increased the pensionable age, has modified eligibility conditions for old age pensions, early retirement pensions and old age social allowance -which are automatically linked to increases in life expectancy at 65 years- and has accelerated the transition to the Notional Defined Contribution (NDC) system (EC 2015, OECD 2018).

A lower ODR should not be automatically translated into a lower aging burden, a higher share of anticipated pensions or lower employment rates are more important determinants of the burden than the actual number of elders.

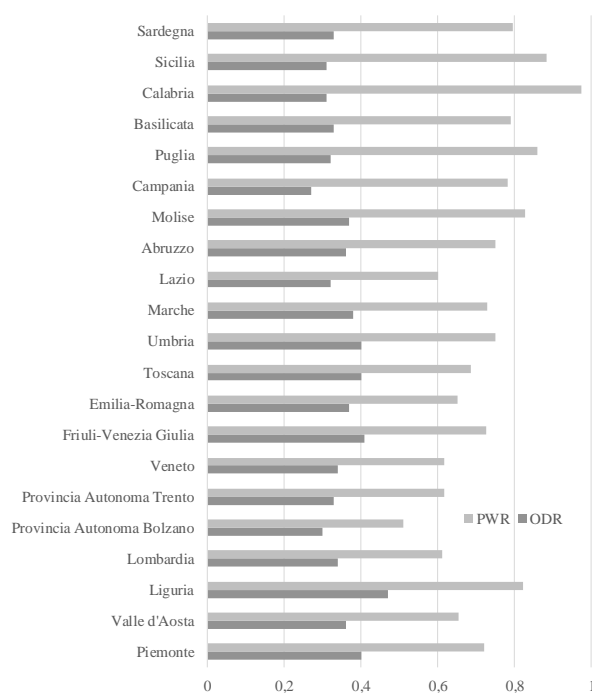
The figure below compares the ODR and the PWR at regional level in 2016 (Figure 4). From the data in this figure it is apparent that values differ widely, from a low 0.60-0.61 in Lazio and Lombardia to a high 0.98 in Calabria or 0.85 in Puglia. This ratio is much larger than the ODR in all regions but is more than 3 times higher in Calabria and 2.9 in Campania and Sicilia. The ratio between pensioner and workers displays the lowest values in Lazio (0.60), Lombardia (0.61) and Veneto (0.62).

**Figure 3** – Italy. Evolution of the Pensioner per Worker Ratio (PWR) by macro-area (NUTS 1). Years 2008-2016.



Source: Own elaboration, ISTAT data.

**Figure 4** – Italy. Old Age Dependency Ratio (ODR) and Pensioner per Worker Ratio (PWR) by regions (NUTS 2). Year 2016.



Source: Own elaboration, ISTAT data.

### 3. Public expenditure on pensions: possible solutions from mixed policies

One of the most important consequences of population aging has been the fast and huge increase of the cost related to the pension system. This paper replies Bongaarts' (2004) calculations to measure the increased experimented in Italian regions through the Public pension Expenditure Ratio (PER):

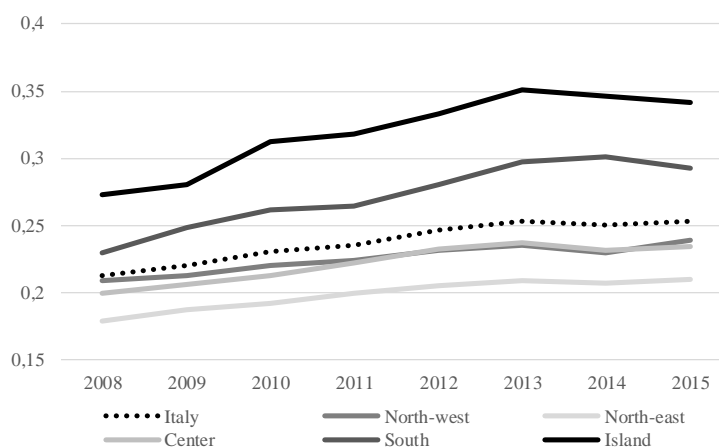
$$PER = BR \times PWR \quad (2)$$

Where the Benefit Ratio (BR) in (2) is computed as the ratio between the average public pension (per pensioner) and the average income (per capita).

Figure 5 displays the evolution of the public pension expenditure ratio (PER) in Italy (NUTS1). In 2013, pension expenditures amount to 21 percent of income in the North-East, but they almost reach about one quarter in the North-West and in the Center, and they slightly exceed one third of income in the South (30%) and Island (35%). Moreover, average public pension benefits are most generous in the South and Island, where they equal 36% and 40% of average income, respectively. Benefits are lower in the North East at slightly more than one third of average income.

When looking at regions, Sicilia (0.38) and Calabria (0.37) reached the highest PER in 2013, and three years later have settled on 37% and 36% of income, respectively. Sicilia has the highest BR and the second highest PWR.

**Figure 5** – Italy. Public pension Expenditure Ratio (PER) by macro-area (NUTS 1). Years 2008-2016.



Source: Own elaboration, ISTAT.

Table 1 presents the summary of the indicators calculated following Bongaarts' (2004) method for 2015 at both NUTS1 and NUTS2 levels. The position of Liguria (16<sup>th</sup>) is mostly due to the effect of the age structure: it has the highest ODR and a high Pensioner per Worker Ratio. Instead, in both Sicilia and Calabria the values of the ODR are among the lowest but this favorable effect of the age structure is reversed by the combination of the highest benefit ratio and a low employment rate in the first case, and the lowest employment rate and the highest PWR in the second.

The most interesting observation that emerges from the data comparison comes from Emilia-Romagna (fifth position of the PER ranking), where a relatively old population (if compared to the ODR of regions with lower PERs) is contrasted by the second highest employment rate (67%). This region is a perfect example of how to challenge aging with a high share of employed people.

A closer inspection of the evolution of PER (Figure 5) clearly shows a sort of stabilization of public expenditure dedicated to pensions. Here again, this trend might be attributed to the "*Fornero effect*" that has reduced the number of pensioners expected by expanding working careers.

Policymakers and stakeholders in Italy have responded to the economic consequences of aging by implementing policies to reduce pensions costs (i.e. expand working careers, update public pension schemes, encourage private personal savings). However, there are other policy options that might help reaching better results (such as labour market policies). For example, to increase labour force participation by enhancing the processes of activation or reintegration of low employment groups (mothers with young children, older workers, people with disabilities, undocumented migrants). When simulating a situation in which pensions policies acted had been accompanied by a slight rise in employment, where the Employment Rate (ER) increased by 0.05% /year from 2008 to 2015, the Public pension Expenditure Ratio (PER) would further decrease despite the shortness of the period. The greatest reductions would be registered in the Island and the South where PER would lose 3 and 2 points, respectively.

Figure 6 illustrates the future evolution<sup>1</sup> of PER by macro-areas and makes evident that the heaviest burden that will carry public budgets is still to come. Around 2042, the PER for Italy will be 2 times higher than it was in 2008 and will stabilize representing 45% of income afterwards. The North and the Center have shown and will still show the lowest levels of pension expenditures, reaching around 35% of income by 2066. The most striking result to derive from this projection is the significant growth of expenditure in southern Italy (72% in the Island and 63% in the South by 2066). If looking at the regional level, the PER

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<sup>1</sup> PER projections were computed using ISTAT projections of the ODR (demographic indicators) and maintaining the rest of indicators fixed at 2016 values.

triplicates its value in Sardegna and Campania and exceeds the duplication in Molise, Puglia, Basilicata, Calabria and Sicilia during the period 2008-2066.

**Table 1 – Italy. Estimates of indicators based on Bongaarts. Year 2015.**

	<b>PE</b>	<b>B</b>	<b>OD</b>	<b>P</b>	<b>E</b>	<b>PW</b>
	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>	<b>R</b>
<b>North</b>	<b>0.2</b>	<b>0.</b>	<b>35.</b>	<b>0.</b>	<b>0.</b>	<b>0.6</b>
	<b>1</b>	<b>32</b>	<b>40</b>	<b>93</b>	<b>65</b>	<b>4</b>
	0.2	0.	35.	0.	0.	0.6
Center	3	35	30	79	61	6
	0.2	0.	36.	0.	0.	0.6
North-west	4	36	30	93	64	6
	0.2	0.	29.	0.	0.	0.7
South	9	37	60	69	46	7
	<b>0.3</b>	<b>0.</b>	<b>30.</b>	<b>0.</b>	<b>0.</b>	<b>0.8</b>
Island	<b>4</b>	<b>41</b>	<b>80</b>	<b>63</b>	<b>43</b>	<b>2</b>
	0.2	0.	33.	0.	0.	0.7
<i>Italy</i>	5	35	70	82	56	0
	<b>0.1</b>	<b>0.</b>	<b>29.</b>	<b>1.</b>	<b>0.</b>	<b>0.5</b>
<b>Provincia Autonoma Bolzano</b>	<b>5</b>	<b>29</b>	<b>20</b>	<b>03</b>	<b>71</b>	<b>1</b>
	0.2	0.	33.	0.	0.	0.6
Veneto	0	32	60	91	64	2
	0.2	0.	32.	0.	0.	0.6
Provincia Autonoma Trento	1	34	20	97	66	2
	0.2	0.	33.	0.	0.	0.6
Lombardia	1	34	70	96	65	1
	<b>0.2</b>	<b>0.</b>	<b>37.</b>	<b>0.</b>	<b>0.</b>	<b>0.6</b>
<b>Emilia-Romagna</b>	<b>2</b>	<b>32</b>	<b>20</b>	<b>96</b>	<b>67</b>	<b>5</b>
	0.2	0.	39.	0.	0.	0.6
Toscana	2	32	70	85	65	9
	0.2	0.	37.	0.	0.	0.7
Marche	2	31	60	87	62	3
	0.2	0.	35.	0.	0.	0.6
Valle d'Aosta	4	37	30	90	66	5
	0.2	0.	31.	0.	0.	0.6
Lazio	4	40	60	71	59	0
	0.2	0.	39.	0.	0.	0.7
Umbria	5	33	40	83	63	5
	0.2	0.	40.	0.	0.	0.7
Friuli-Venezia Giulia	6	35	30	89	64	3
	0.2	0.	35.	0.	0.	0.7
Abruzzo	7	35	00	77	55	5
	0.2	0.	39.	0.	0.	0.7
Piemonte	8	38	10	95	64	2
	0.2	0.	32.	0.	0.	0.7
Basilicata	8	35	90	74	49	9
	0.3	0.	32.	0.	0.	0.8
Sardegna	0	38	50	69	50	0

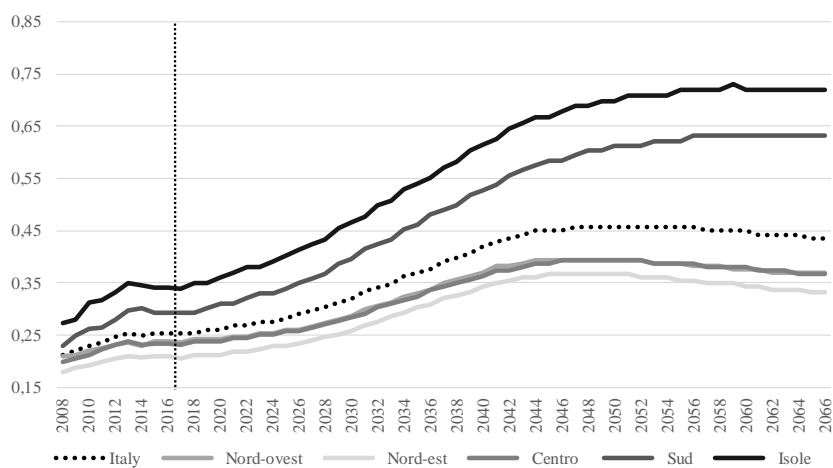


	0.3	0.	46.	0.	0.	0.8
Liguria	1	37	30	80	62	2
	0.3	0.	31.	0.	0.	0.8
Puglia	1	36	30	71	43	6
	0.3	0.	26.	0.	0.	0.7
Campania	2	39	20	65	40	8
	0.3	0.	36.	0.	0.	0.8
Molise	3	37	10	78	49	3
	<b>0.3</b>	<b>0.</b>	<b>30.</b>	<b>0.</b>	<b>0.</b>	<b>0.9</b>
Calabria	<b>6</b>	<b>36</b>	<b>60</b>	<b>70</b>	<b>39</b>	<b>7</b>
	<b>0.3</b>	<b>0.</b>	<b>30.</b>	<b>0.</b>	<b>0.</b>	<b>0.8</b>
Sicilia	<b>7</b>	<b>42</b>	<b>30</b>	<b>61</b>	<b>40</b>	<b>8</b>

Source: Own elaboration, ISTAT.

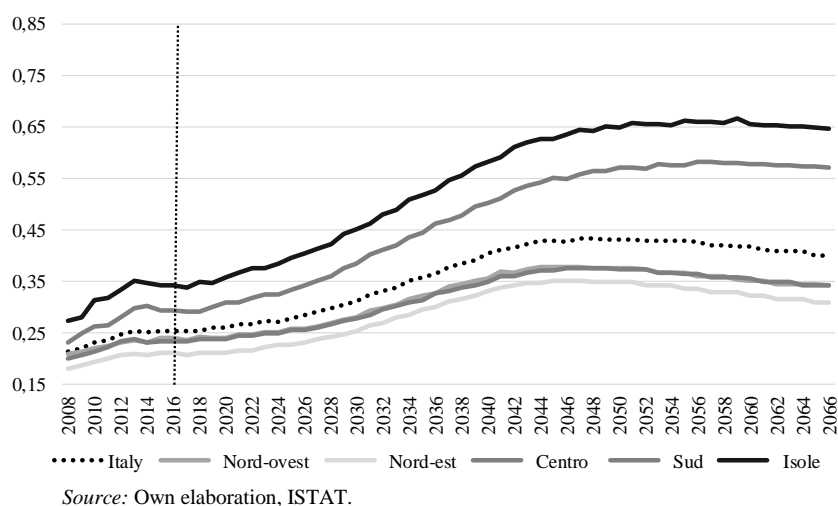
Which reduction on PER will produce an increase of employment? Figure 7 shows the simulated effect on the Public pension Expenditure Ratio (PER) between 2017 and 2066 of a 0.1% /year rise in employment rates. This action would certainly not stop the increasing trend of expenditure on pensions, but it would generate significant changes on the magnitude of this rise. It is possible to observe a reduction of PER of at least 5 percentage points in Italy (if compared to previous projections) and more than six points in the South (57%) and Island (65%).

**Figure 6 – Italy. Evolution and forecast of the Public pension Expenditure Ratio (PER) by macro-area (NUTS 1). Years 2008-2066.**



Source: Own elaboration, ISTAT.

**Figure 7** – Italy. Evolution and forecast of the Public pension Expenditure Ratio (PER) by macro-area (NUTS 1) with a yearly increase on Employment Rates. Years 2008-2066.



#### 4. Conclusions, implications and policy recommendations

Results are in line with Bongaarts' statement (2004) about the lack of adequacy of standard indicators of population aging to measure the real burden of a growing number of elders on states budgets. When applied to Italy, the Pensioner per Worker Ratio (PWR) seems to better control territorial variations in employment and pensioners ratios.

In fact, differences between Old age Dependency Ratio (ODR) and PWR have important implications both at NUTS1 and NUTS2 levels. Southern Italy shows the lowest values of ODR, but has the highest PWR. This high value of PWR is then translated into an increased Pension Expenditure Ratio (PER), meaning a higher burden.

In this setting, it has been demonstrated the decisive role played by a high employment ratio to neutralize the cost of population aging. A great example is Emilia-Romagna a region that, even if having a high number of elders compared to working-age population, enters on the ranking of the top 5 regions with the lowest PER thanks to one of the highest employment rates of the country.

One of the most interesting findings is related to the effect of recent policies acted to reduce pensions costs. The evolution of both the Pensioner per Worker Ratio (PWR) and the Pension Expenditure Ratio (PER) clearly shows a turning

point after 2013 that coincides with the full implementation of the last pension reform (Fornero, 2011).

It has been also proved that the simultaneous application of mixed policies (pension and employment policies) would produce a further reduction of the aging burden -in terms of pension costs-. As seen, in a scenario where working careers have been expanded and retirement age adjusted to life expectancy, even a slight increase in employment rates will reduce the Pensioner per Worker Ratio (PWR) and, consequently, the Pension Expenditure Ratio (PER) -particularly in Southern Italy.

Without mixed interventions, population aging will lead to huge increases in public pension expenditure over the next five decades. The projections show that the Pension Expenditure Ratio (PER) in Italy will (at least) rise from 21% to 44% of income between 2016 and 2066 in the absence of changes in labour force participation (ER) and in the Pensioner Ratio (PR). The largest rise is projected for Sardegna, where the PER will grow from 23% to 69% of income during the same period. Future research must focus on the search for tailored made policies that take into account territorial differences on aging, expenditure and employment. For example, active labor market policies for reintegration after childbirth, greater availability of public childcare services and business practices oriented to flexible working hours could be especially important for Southern Italy where pension expenditure will benefit from an increased female participation in labour market activities which is still at very low levels (Calamo and García Pereiro, 2014, 2016).

Population aging also has important implications for the health system. In this case, as stated by Spijker and MacInnes (2013) its sustainability will depend on the capacity to deal with the relationship between morbidity and remaining life expectancy.

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## SUMMARY

### **Aging and pensions in Italy: highlighting regional disparities**

Population aging in Italy is well underway. In 2017 the proportion of individuals over 65 years old was around 22.3% and according to the Aging Index (AI) there were 165 over 65 per 100 individuals between 0 and 14 years old. The Italian National Institute of Statistics (ISTAT) estimates that population aged 65 and over is expected to increase to 33% by 2050, while the AI will reach the value of 262.

Italy is becoming one of the oldest countries in the world while its economically active population is shrinking, and such an unstoppable trend is likely to place significant pressure on economic growth and public expenditures due to an increased demand of public health care services and pensions. With data drawn from demographic, labour force, and pension system statistics available from the ISTAT this paper replies Bongaarts' calculations (2004) to estimate the aging burden at different geographical levels (NUTS1&2). Empirical results show that population aging will lead to huge increases in public pension expenditure over the next five decades in the absence of changes in employment (ER) and in the Pensioner Ratio (PR). More targeted interventions will require mixing pension and employment policies to further reduce public expenditure linked to population aging.

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