Ageing determinants of post-retirement participation in the labour market

Irina ANGHEL[1],

Valentina VASILE[2]

Abstract: *One of the most pressing issues on the political agenda at all national and international levels is the challenge to design the most efficient tool package to address the demographic ageing phenomenon, the approach that would minimize or avoid threats and turn the opportunities associated to best advantage. Among the directions of action, encouraging, supporting and promoting active ageing is a core strategic objective. This paper looks into the aspects related to the propensity among the elderly to stay active on the labour market after retirement and, based on qualitative as well as quantitative analyses, and depicts some important determinants and their relative influence on the behaviour and attitude of the older generations towards employment. It also highlights main policies and actions that may be taken in order to increase the participation rate.*

Keywords: *active ageing; demographic ageing; retirees on the labour market*

JEL Classification: *J26; J21*

1. Introduction

Demographic ageing, a trend that has shaped the socio-demographic evolution of the global and local societies along the last decades, entails a wide range of challenges for the political design aiming at the overarching goal of sustainable development. Literature emphasizes the bipolar nature of the demographic ageing issue, with respect to the decision-makers, as well as to its short medium and long-term potential consequences. (UN, 2011; UN, 2009; WEF, 2015). The elderly represent a valuable but

---

[1] *The Institute of National Economy, Romanian Academy*

[2] *Prof., Ph.D. in economics, Senior Researcher, Institute of National Economy, Romanian Academy, e-mail: val.vasile.ien@gmail.com.*

still undervalued resource for the society and social development. They contribute to the societal wellbeing as workers – payed or volunteered, as important consumer segment, or as informal trainers and supporters of their offspring. Moreover, given good health conditions, high experience and know-how acquired along working lives may directly and substantially add to the economic and social development (WHO, 2002). Yet, at the same time, the demographic ageing phenomenon may raise threats and risks to the sustainable development goal. If not handled properly, it may directly undermine at least two of the sustainable development pillars – the social and the economic sustainability. Worsening demographic dependency rates, if not compensated by corresponding labour productivity increase and by the reintegration of the aged workforce on the labour market, would impair the economic growth potential and the fiscal sustainability (EC 2009, 2015), with tremendous consequences at the economic, budgetary and social levels.

Based on available literature and relevant statistics, this paper looks into the factors that may bear on the propensity of the aged to remain active on the labour market, with emphasis on the Romanian context.

2. The Demographic Ageing – An imperative towards Active Ageing

Population ageing is the inherent outcome of the two concurrent phenomena: decrease in fertility rates and increase in life expectancy. At global level, the total fertility rate reached 2.36 in 2015, only 0.03 above the demographic replacement rate and is expected to fall further, down to 2.03 by 2100 (UN, 2011). The same predictions suggest that, by 2050, 76.7% of the world population will live in states with fertility rates below the generational replacement threshold. Even if in 2012, 46% of the EU states reported raising fertility rates as compared to 2011, in 2013, they decrease again or stay constant, except for Germany, Latvia, Hungary and Austria. The overall total fertility rate for the EU is predicted to still raise by 2060, but remain below the demographic replacement rate (EC, 2015)

The demographic transition was settled in Romania after 1989, with a major time lag as compared to other western societies, due to the previous pro-natality policies. The fertility rates followed a general downward trend and, in 2013, reached 1.41, below the demographic replacement rate of 2.1 (for the more economically developed countries) and below the EU average of 1.55 (EC, 2015). Demographic projections suggest an increase in fertility rate up to 1.83 by 2060, which would still be below 2.1. On the other hand, the life expectancy at birth as well as at 60 years of age followed a steadily rising trend, an outcome of the progress in medical knowledge and practice, of continuous general improvement in the living standards and wellbeing, and better designed,

developed and implemented policies for public health education and services. According to the UN prognosis, at global level, in the next 40 years, the life expectancy at 60 years of age would rise from 19.7 years in 2010, to 22.4 in 2045-2050, and from 7.9 years (at 80 years) to 9.1. As for Romania, in 2013, life expectancy at 65 years was appraised at 16.1 years, with 2.32 years higher than in 1996 and is presumed to further increase to 20.7 for men and 23.8 for women in 2060 (EC, 2015).

These tendencies *are changing the demographic age structure, towards higher shares of older generations against lower and lower shares of the youth in total population, and, of the active population*. People aged (60+) represented, in 2013, 11.7% of the total world population (while in 1990, they were only 9.2%) and this share is expected to rise to 21.1% in 2050 (UNFPA, 2012). Furthermore, the older population is ageing itself, as the share of the persons over 80 years in total population above 60 will increase from 14% in 2013, to 19% in 2050. In absolute figures, that means that the 2013 level will triple by 2050. In Romania, given the total population decline (of 13% until 2060, when the census will probably show less than 17.5 million people), the upward trend of the active population share in total population, that has been observed so far, will reverse. By the year 2060, it is expected that the share of the oldest (80+) among the aged (65+) would increase by 16.3 p.p. from 2014 and reach 39.9%, and will represent 11.5% of the total population (+7.7 p.p. as compared to 2014). In absolute figures, the number of people over 65 years would double and those over 80 years would triple.

Beside these tendencies, migration would itself accentuate the demographic structure unbalance, *as 65% of the workers temporarily employed abroad are between 20 and 40 years old* – the age interval of maximum fertility in the lifecycle. (Vasile et al., 2012). Currently, the external migration balance is negative, the outflows exceeding the inflows. According to the EU report (EC, 2015), this situation is probably going to change and Romania will become a destination migration country. Yet, this would most likely not significantly impact on the demographic ageing processes, at least in the early decades.

Thus, the demographic age dependency rate increases, in Romania, from 51% in 2013 to 77% in 2060 and the total economic dependency rate from 138% to 192%. Both indicators go beyond the EU28 average, suggesting *an accelerating ageing* and, consequently, a loss in the present leverage in the European context.

The diminishing share of active working population hits hardly the economic growth potential, especially in the context of a knowledge-based economy, where the human resources play a critical role in spurring and sustaining endogenous growth. It also undermines the sustainability of the social protection system: lower budgetary inputs will accompany higher social expenditures. Moreover, the total demographic ageing

expenditures – with respect to pensions, health care and long-term care, education, unemployment – are expected to increase from 15.4% of GDP in 2013, to 17.6% of GDP in 2060.

Future lower economic growth rates and lower public budget incomes, on one hand, and rising public expenditures with transfers and social services for the elderly, on the other hand, call for present sound social and economic policies that may mitigate or even prevent the associated risks at individual or societal levels. Research-development and innovation resources should be directed towards higher labour productivity gains through absorption and creation of new technologies, towards regional and national smart specialisation processes and towards the development of medical technologies and services / products able to support the retirement postponing and the extension of the economically and socially active life of the elderly. Yet, another important concern of the policy makers is to identify the instruments to encourage the elderly to stay active and also valuable on the labour market and in the society. The concept of "active ageing", its dimensions and facets together with the determining individual and societal factors, the empowering instruments and the incentives are high on the national and international political and scientific research agendas. It engages intersectoral policy instruments (WHO, 2002), as it involves policies regarding the labour market sector, social protection, public health, education, etc.

3. Elderly participation in the Labour Market as an instrumental factor for Active Ageing and for meeting the societal challenge of demographic ageing

The definition adopted by the WHO experts relates an active ageing to the optimization of opportunities for physical, social and mental wellbeing (health), participation in the society and for autonomy, independence and access to appropriate care, that eventually enhance the quality of life as people age (WHO, 2002). Another approach (Zaidi et al., 2013) defines "active ageing" as the ability of ageing people to lead healthy, independent and secure lives, and consequently, to continue to stay active within an enlarged family, a local community and the society as a whole. This may involve a dynamic social life and, either or both the participation in the labour market *and* the contribution to unpaid but valuable activities to community and family (care provision to dependent family members, volunteering, etc.). Thus, the concept and objective of Active Ageing concurrently integrates the general well-being and quality of life of the ageing individual, on one hand, and the benefits and responsibilities pertaining to the society, on the other hand.

Various dimensions of Active Ageing (participation in society, healthy living or employment) are interdependent and rely on the capacity and effectiveness of the integrating society to provide and ensure the appropriate *environment* and *tools* that enable and encourage the individuals *to become informed of their responsibility, to assume it and proactively engage towards "a life without limits" while ageing.*

As the sustainable development has become a priority for policy makers and experts, assessing present performance and measuring the progress regarding, the active ageing have lately been a major concern, and the literature proposes various selected indicators – simple or composite – to these ends. Following the research efforts undertaken in 2012 (the European Year for Active Ageing and Solidarity between Generation), the Active Ageing Index project managed by the EC's DG EMPL and the UN Economic Commission for Europe (UNEC) released, in 2015, an analytical report that presented the contents and results of a system of indicators for Active Ageing applied to EU countries (UNEC, 2012). The indicators were grouped by four key domains of Active Ageing: (a) *employment;* (b) *participation in society;* (c) *independent, healthy and secure living;* and (d) *capacity and enabling environment for active ageing*, expressing, on one hand, the actual experience of active ageing (a, b and c) and, on the other, the capacity to actively age (d). Romania ranks low among the EU member states in three out of the four dimensional composite indicators and in the overall index as well. It ranks the 26th, 27th and 28th by *participation in society*, *independent living* and *the capacity of active ageing*. The overall AAI (Active Ageing Index) integrates Romania among the low-score countries, together with the other CEE Countries, Greece, Croatia, Malta, Lithuania and Latvia, followed closely by Spain and Portugal. With 29.6, Romania ranks below EU28 average (33.9) and at a considerable distance from Sweden, the EU28 leader in the AAI ranking (44.9). The contrasting position with respect to *employment* (11th) is explained by the fact that, especially in the case of the peculiar labour market structure in the rural areas, due to the very low income that cannot cover the expenditure on a decent living, the retired agricultural worker remains involved in their subsistence agriculture activities just to survive and be able to support their families.

Recent developments in the activity and employment rates of the older workers indicate a steady improving trend in their participation in the labour market. The average employment rate figures for the EU28 have improved for most age groups (55-59, 60-64, 65-69), but different paces. Thus, for the age groups five years before and after retirement age, the employment rates in the first quarters of 2016 increased by 10 percentage points since the pre-crisis period (an increase of 35%). The employment rate in the age group 65-69 is 2.1 p.p., higher than the first quarter of 2008 (EC, 2016) (Figure 1). Moreover, the activity rates among the older workers, an even more relevant indicator for the active ageing dynamics has also increased on average at EU level.

Figure 1 - Employment rates for older workers and total working age population, pre-crisis and current levels
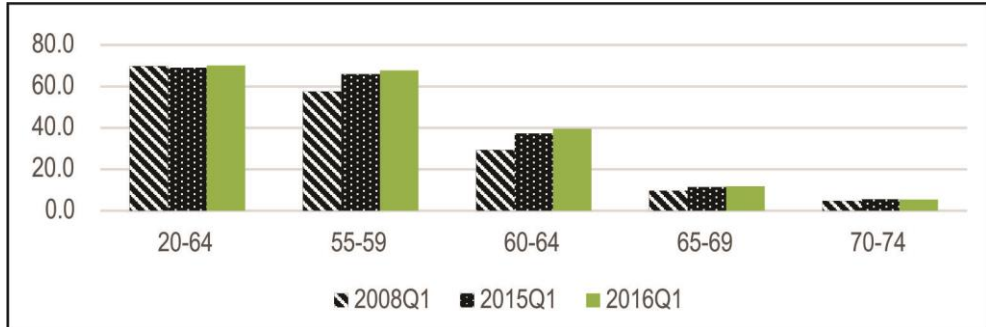
Source: based on EC, 2016, Employment and Social Developments in Europe. *Quarterly Review Autumn* 2016, European Commission

Unfortunately, the activity and employment rates among the Romanian older workers have followed a different trend. (Figure 2) The most recent available data for Romania – calculated by Eurostat for the second quarter of 2016 – is by only 0.1 p.p. and 0.2 p.p. above the activity and, respectively, the employment rate levels in the first quarter of 2008. The 2015 figures rank Romania as one of the only two EU countries which reported employment and activity rates for the old workers, below the 2008 level.

Figure 2 - Activity and employment rates for older workers, Romania and EU28 average. 2016 1st and 2nd quarters vs 1st quarter 2008
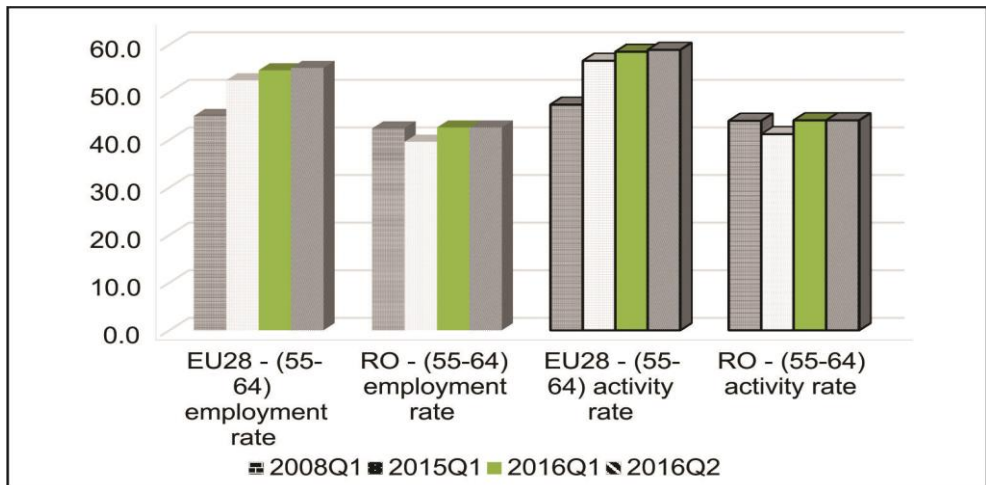
Source: based on Eurostat Database, [lfsi_emp_q].

According to Eurostat data processed by authors (based on file lfsa_egan2), in 2014, in the European Union (28), 19.8% of the people over 65 in the labour market were employed in agriculture, and the figures are on a steady downward trend: in 2008, the agricultural workers represented more than 30% of all retirees. Supporting the assertions above, the Romanian situation is highly contrasting with the EU numbers. Thus, in 2014, the share of 65+ workers in agriculture in total aged workers (65+) was 96.2% and the value was just 0.04 p.p., lower than the 2008 level. In between, the share increased up to 98% in 2010. It is also relevant that the share of the employees in agriculture, forestry and fishing in total employees of working age (15-65) was of 25.4% in 2014, about a quarter of the value of the same indicator for the (65+). While males are more numerous among the agricultural workers on average in EU countries (61.4%), in Romania, the ratio is reversed, as females represented 54.2%. Moreover, the employment rate for the people of 65-79 years old, with a low educational level exceeds the EU average figures for those. Unfortunately, the propensity of the most educated aged people to stay active in the labour market is double in EU28 (on average) than in Romania (Figure 3a). Figure 3b also reveals a decreasing tend in the employment rate among the least educated aged people and a stagnant one for the rest.

Figure 3 - Employment rates in the 65-74 age group, by educational level (ISCED)
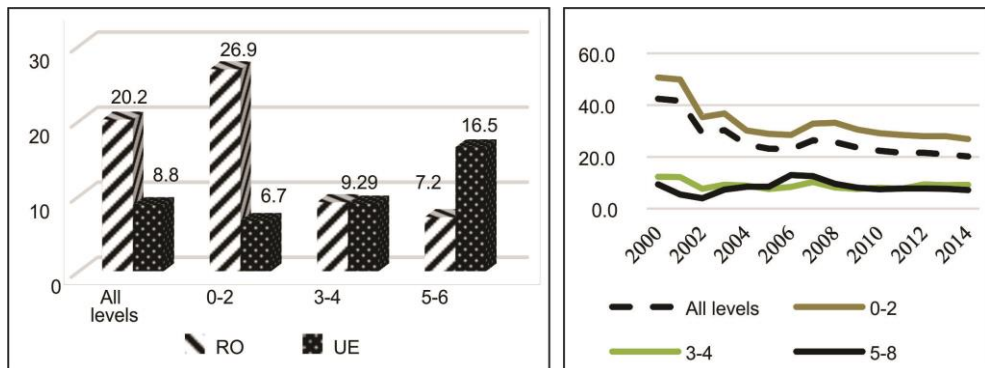
Source: based on Eurostat database,
http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsa_ergaed&lang=en .

Therefore, the high activity rate among the Romanian retired population is, unfortunately, not a sign of high propensity to stay active but of the only alternative for reducing or avoiding poverty. The pensions level is, for a significant share of retired

population lower than the minimum necessary income in the old age and the social assistance system failure to ensure sufficient supplementary funds (social benefits).

The level of formal employment of the elderly is an output as well as an input indicator of active ageing within a certain society. On one hand, it may reflect the absorptive capacity of the labour market to integrate available aged workforce, and the ability of the society to provide the appropriate environment, working conditions and incentives for the elderly to remain active. In Romania, the elderly employment rate associated with other socio-economic indicators relevant to the level of wellbeing (such as the replacement rate, the absolute poverty rate for the elderly etc.) also suggests the amplitude of the poverty risk. So, employment after retirement remains the most frequently used coping instrument for elderly managing, ex-post, the risk of poverty. Thus, in certain socio-economic contexts, it may be an output indicator for the effectiveness of the social protection systems to ensure security after retirement. On the other hand, in the context of an ageing society less and less able to fully undertake the traditional task of covering the living and health-related expenditures of enlarged generations of old people, the employment rate among the (65+) is rather an input indicator, as it provides a wide estimation over the quality of life and general wellbeing of the aged. To a larger and larger extent, in any ageing society, the access to financial security and independent living of the aged people depend on the participation of the ageing workforce in productive paid activities.

Except for atypical contexts, higher employment rate for the elderly means higher economic growth potential, higher aggregate demand, higher budgetary income. Thus, a key strategic element in all political packages addressing the sustainability of the social protection systems and the active ageing challenge has been, and will be, keeping the ageing person active on the labour market after retirement, as long as possible and desired, as it alleviates and prevents poverty, and supports the budgetary balance of the pension and social assistance schemes.

4. Factors to push old age employment

Generally speaking, a positive attitude towards employment of an age retiree is determined by the individual's own desire and interest to work and by the openness of the labour market and the supportive attitude of the society through specific policies and civil society initiatives. The choice to stay active, or not, on the labour market after retirement is dependent on multiple personal, contextual and societal variables, some of them hardly controllable or predictable. (Stegeman et al., 2012; EC, 2012; WHO 2002). They are related to the health and social services systems, to cultural context, to personal, economic or physical determinants (WHO, 2002) or dependent on professional specialisation, career and potential to work at old age. Sometimes, being

active an old age means also to change, more or less, the activity profile aquired during working age period.

According to Eurostat, in 2012, 29.1% of the EU28 retired persons aged 50-69 were determined to stay active out of non-financial reasons, such as work satisfaction. The figures vary from 78.8 (Denmark) to 2.2 (Romania). It is apparent that this percentage is directly and positively correlated with the value of the Active Ageing Index (correlation coefficient of 0.63) suggesting that, the higher the capacity of a society to attract the ageing population towards the labour market, the higher the percentage of people who continue working for their own professional satisfaction.

As mentioned above, **in Romania**, despite the high rate of employment amongst the elderly, the share of those who work just because they enjoy what they do or because they want to stay active and useful (*i.e.* "for non-financial reasons") is only 2.2%. A staggering share of 90.5% continue working in order to provide sufficient personal or household income while 5.7% intend to establish or increase future retirement pension entitlements (Figure 4).

### Figure 4 - Distribution of the working retirees (aged 50-69) by main reasons for staying active
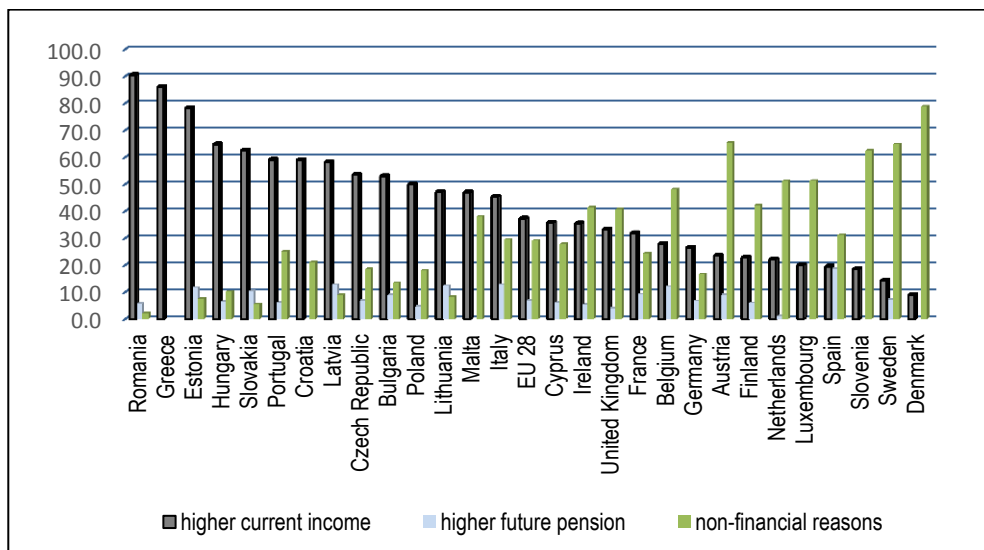
Source: Eurostat data processed by authors,
        http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfso_12staywork&lang=en .

The same Eurostat Labour Force Survey presents the distribution of the inactive retirees by the main reason for not working (Figure 5).

Figure 5. Main reasons for inactive retirees receiving pension (50-69 years old) to quit working in Romania

a)   *Romania data in 2012 (%)*
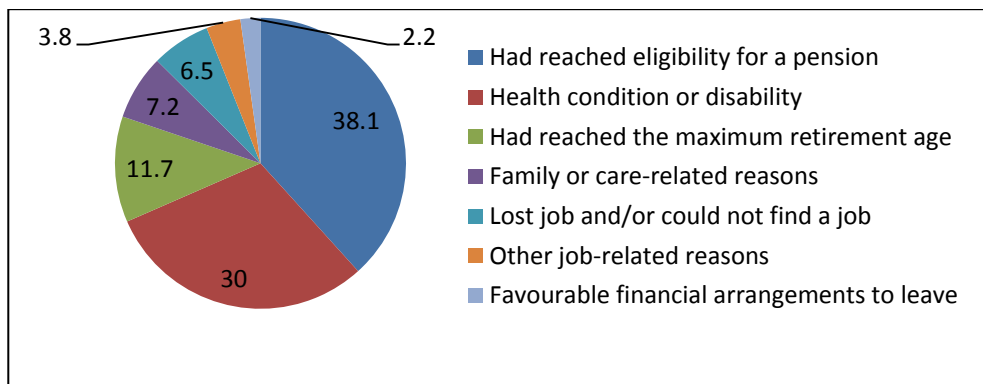
b) *Differences against average EU level (in p.p.)*
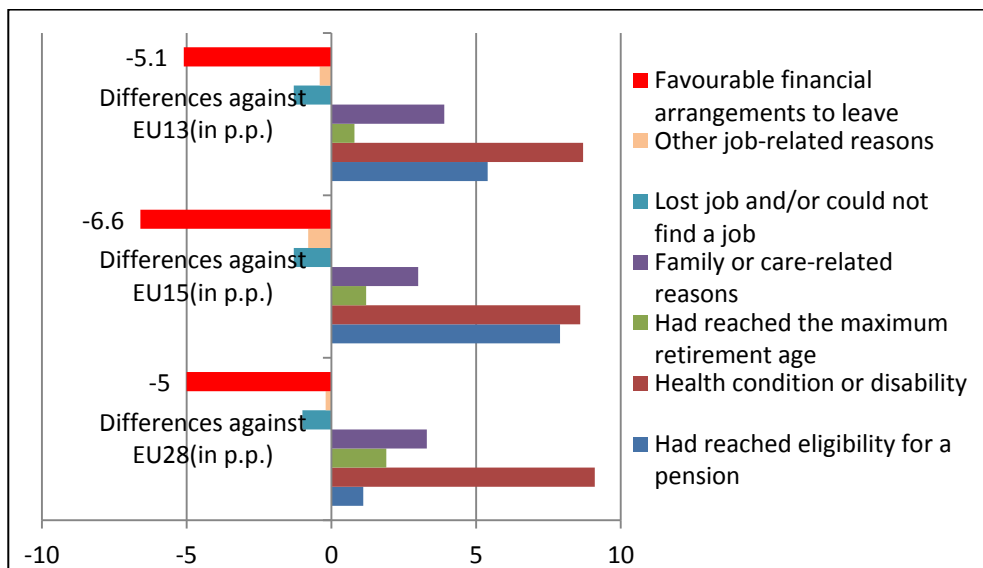
Source: data processed by authors, based on Eurostat http://ec.europa.eu/eurostat/data/database?node_code= lfso_12reasnot,last available data are for 2012 Survey.

In Romania, about 38% of the 50-69 aged pensioners who are outside the labour market are inactive simply because they can afford that. They are eligible for retiring and there are no strong incentives to redirect them again towards payed work. 30% stays at home because of bad health condition. It is relevant to mention that this indicator ranks Romania the sixth among the EU28 countries. Somewhat surprisingly for a society based on conservative and traditional family patterns, only 7.2% chose to stay inactive due to family context that requires undertaking responsibilities, such as providing care services for other dependent family members.

While family peculiarities are complex and often divergent reasons for staying in the labour market, a good health condition, a positive attitude towards professional alternatives together with specific abilities, capacities and/or experience that would recommend the individual to potential employers are prerequisite for a smooth reintegration or continuance in the labour market. In this respect, we consider three indicators that may be relevant proxies for some of the most frequently acknowledged (in the literature) determinants for an active status in the labour market:

- **The educational level**, for the ability of the aged worker to remain relevant and eligible, resourceful on the labour market. It is a fact that, the higher the educational level, the higher the probability that the worker stays updated and informed, involved in life-long-learning; secondly, it is more probable that the educated worker finds and keeps interest and even passion for their profession; and equally important, an educated worker is more likely to be open to discovering payed work alternatives that may bring the self-fulfilment they may have longed for until retirement, even in the form of own entrepreneurial initiatives. Nevertheless, we cannot overlook the peculiar context of the economically less developed countries where, the lower the educational level, the higher the urge to keep working in order to supplement poor income.
- **The health condition,** critical also for the capacity and disposition of the individual to stay on the job or to search for one. The physical and psychological condition is itself the result of the conjugated action of multiple factors, related to genetic endowment, to adult lifestyle, to the level of access to information and health care services, to income, to household responsibilities etc.
- **The societal awareness,** with respect to the issue of ageing and its medium and long-term consequences, as well as the effectiveness of the society's response to this challenge, expressed in political initiatives, civic actions and individual decisions.

4.1. Methodology

In order to draw on the most available data and statistical instruments, we apply multiple regression models on panel data provided by Eurostat for the EU 28 countries to test,

through proxy indicators, the influence of the above mentioned key factors on the propensity of the aged people to keep working even after retirement age. The dependent variable in all models is the activity rate for the age group of 65-74.

Regarding the **educational level, by means of** Eurostat primary data, we determine the elderly distribution by educational level (ISCED 0-2; ISCED 3-4 and ISCED 5-8). Thus, the percentage of the people that completed ISCDE 0-2, 3-4 and 5-8 levels, respectively among the people aged 65-74, represented, consecutively, independent variables in separate regression models.

The **health condition** was indicated by the percentage of people who declared to enjoy good and very good health. These values were also available in the Eurostat database.

For the third factor, **societal awareness**, we considered that the depth of the demographic ageing process is itself a relevant proxy. The selected indicator is the Eurostat old-age dependency ratio. Actually, the strength of the correlation between the demographic ageing intensity and the elderly activity rate is indeed a sign of both awareness and effectiveness of the measures intended to keep people active after retirement.

The indicators chosen for both the health condition and the societal awareness are used in the equations as explicative variables with a time lag, as we considered that, quite often, a change in health state or in societal response to demographic ageing becomes apparent at the dependent variable level after certain time laps.

As the behaviour of the aged workers in the labour market is also dependent on the cultural context and, naturally, on the specific social model and general welfare background, we built regression models not only on the panel of the EU 28 countries, but also, on groups of countries. The clustering was based on criteria related to the affiliation to a social model, as described in Esping-Andersen and subsequent literature (Fenger 2007, Arts and Gelissen, 2002, Ferrera, 1996), and to other aspects related to the economic development level.

Thus, in order to ensure the minimum number of observations for regression, given other socio-economic similarities, we joined the central-northern European countries (the *liberal model*, the *conservative-corporatist* and the *social-democrat* ones). This cluster grouped Austria, Belgium, Germany, France, Luxemburg, the United Kingdom, Ireland, Denmark, Sweden and the Netherlands (CNC). The second cluster integrated the CEE Countries (CEE), that once belonged to the communist block: Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovenia and Slovakia. The third group gathers the Southern-Mediterranean countries (SMC), with their specific cultures and social models: Cyprus, Greece, Spain, Italy, Malta and Portugal.

We opted for a regressive model on panel data as panel data techniques allow to control for variables that account for individual heterogeneity and higher relevance and substance of the results. The models were tested for errors autocorrelation, for fixed/random effects using the Durbin-Watson test, the fixed-effect test and the Hausman test. When the number of observation allowed it, the regression equations included the Y(-1) factor (that is, the values of the Activity Rate (65-74) for the previous year). The main advantage of the auto-regression models resides in embedding the cumulative effect of the factors not taken into consideration. They also assess the inertial character of the analysed process or phenomenon. From a statistical technique perspective, the auto-regression model avoids the error autocorrelation, which is rather difficult to control for in a panel data model.

4.2. Results and discussions

The auto-regressive models run on the EU panel data were validated for all three independent variables (see Table 1, models 1-7).

As regards the degree of demographic ageing – that would reflect also the level of societal engagement towards solving problem – it is apparent that the statistical significance decreases, and the correlation intensity increases, in each year of time lag considered in the autoregressive model, tested itself for fixed effects (Table 1, models 1 and 2).

 Regarding the educational level, it is apparent that, the higher *the share of the highly educated among the 65-74 age group (ISCDE 5-8),* the higher the activity rate in the same population segment (Table 1, model 3). The coefficient is rather high and statistically extremely significant. The model where the predictive variable was *the share of the population that completed only ISCED 0-2 level* was also validated (Table 1, model 5). The coefficient (highly significant) suggests a negative correlation and a much lower intensity as compared to the share of tertiary graduates. Both equations were tested for random effects. The share of people that graduated high-school or pre-university programs was not a significant predictor for the activity rate of the aged people (Regr. model 4).

Between the health condition and the activity rate among the 65-74 age group there is, also, a positive significant correlation, tested in both the autoregressive and non-autoregressive models. Obviously, the coefficient in the non-autoregressive model is higher. We noticed that the coefficient of the predictive variable (GVG) entered with a temporal lag of two years is statistically more significant than when considering just a one-year lag (GVG(-1)). (Table 1, models 6, 7). The strength of the correlation between the two models does not differ. They were tested for fixed effects.

Nevertheless, the statistical analysis results differ widely between the three clusters of countries considered in our research.

As far as the stage of population ageing is concerned as a predictive factor for the intensity of employment among the aged people, it seems that only the NCE societies present significant awareness and involvement with respect to this phenomenon, encouraging their elderly to lead active lives, to their own as well as to the society's benefit. The auto-regressive model (tested for fixed effects) was validated, presenting a statistically significant coefficient for the independent variable (*the age dependency ratio*) (Table 1, model 8 and 9). There is no considerable difference between the one-year and two year-lag equations. The non-autoregressive models for the other two groups of countries presented negative coefficients, with very low p values, low Durbin-Watson test coefficient and high Adjusted R-squared, suggesting spurious regressions. In autoregressive equations, the coefficients are statistically not significant (models 17, 18, 25, 26).

It is worth noticing, however, that for the third group (SMEC), when applying one-year lag on the independent variable, the p value is a little higher than 0.05 and the coefficient is positive (Table 1, model 25). That should imply that, given a slightly lower confidence level, in the Southern-Mediterranean cluster, the activity rate can be considered elastic to the demographic dependency ratio dynamics. Anyhow, the influence of the degree and pace of demographic ageing is considerably lower than in the first group of countries (NCEs) (model 8), suggesting a weaker, more limited societal response and awareness to the challenges of the population ageing issue.

Considering the educational level, the share of ISCDE 5-8 graduates within the 65-74 age group in the cluster of CNE countries is a statistically significant predictor for the activity rate in the same population. The autoregressive model, tested for random spatial effects was validated for $p < 0.05$. (Table 1, model 10). The share of ISCED 3-4 graduates was not a significant explanatory variable (Table 1, model 11) while the share of ISCED 0-2 presented a significant negative coefficient (Table 1, model 12). None of the above three independent variables related to the educational level, in autoregressive models tested for fixed effects on the panel data for the second group of countries (the CEEs) presents significant coefficients (Table 1, models 18-20). Assuming that one explanation may reside in the peculiar situation and evolution of the indicators for Romania, non-consistent with the other countries in the group, we removed it from the cluster. Yet, the models remained non-valid. In the third cluster (Southern Mediterranean Countries) the OLS panel data autoregressive models (that hadn't be tested for fixed effects) showed significant coefficients for the share of both ISCED 5-8 (Table 1, model 26) and ISCDE 0-2 graduates but for $p<0.10$ (Table 1, model 28). Moreover, unlike the first group, the coefficients presented contrary signs, that is:

negative for ISCED 5-8 and positive for ISCDE 0-2. This result demonstrates the lack of correlation between the level of demographic ageing and activity rate of the elderly.

Due to cultural and social context in these countries, the societal awareness and individual involvement in managing the challenges related to demographic ageing may be somewhat lower than in central - northern Europe. The incentives for the older workers to stay in the labour market, as well as the incentives for the employers to hire older workers are rather insufficient or ineffective. Thus, given a decent income (that would be the case of the ISCED 5-8 graduates and some of the older people with medium level education, ISCDE 3-4) ensured through pension schemes and, in certain cases, even social assistance programs, the individual would rather chooses for specific activities at retirement period. That may explain the negative sign for the coefficient of the variable "the share of ISCED 5-8 graduates within age group 65-74". Yet, the risk of poverty would urge people with low education to stay active as long as their health condition allows them to, given the scant and poor income and the need of the enlarged family, very likely at risk of poverty, too.

Table 1. Regression equation estimates. Main results

Regress. Model	Sample size	Period	Depend. Variable	Indep. Variable	Coeff.	Std. Error	Prob.
EU panel data							
1	28	2001-2014	AR	DR(-1) AR(-1)	0.08 0.77	0.039 0.028	0.0454 0.0000
2	28	2001-2014	AR	DR(-2) AR(-1)	0.10 0.70	0.045 0.032	0.0198 0.0000
3	28	2001-2014	AR	EDL58 AR(-1)	5.22 0.94	1.13 0.01	0.0000 0.0000
4	28	2001-2014	AR	EDL34 AR(-1)	0.42 0.94	0.51 0.01	0.4101 0.0000
5	28	2001-2014	AR	EDL02 AR(-1)	-0.99 0.94	0.36 0.01	0.0066 0.0000
6	27	2004-2013	AR	GVG (-1) AR (-1)	0.06 0.61	0.023 0.033	0.0099 0.0000
7	27	2004-2013	AR	GVG (-2) AR (-1)	0.10 0.41	0.024 0.044	0.0001 0.0000
Cluster 1 (AU, BE, DE, DK, FR, IE, LU, NL, SE, UK)							
8	10	2001-2014	AR1	DR1(-1) AR1(-1)	0.14 0.86	0.046 0.053	0.0104 0.0000
9	10	2001-2014	AR1	DR1(-2) AR1(-1)	0.14 0.90	0.046 0.055	0.0130 0.0000
10	11	2001-2014	AR1	EDL581 AR1(-1)	2.62 0.99	1.2 0.01	0.0311 0.0000
11	11	2001-2014	Ar1	EDL34 AR1(-1)	3.34 0.66	1.59 0.06	0.0379 0.0000

Regress. Model	Sample size	Period	Depend. Variable	Indep. Variable	Coeff.	Std. Error	Prob.
12		2001-2014	AR1	EDL021 AR1(-1)	-0.85 1.00	0.5 0.02	0.0885 0.0000
13	10	2004-2013	AR1	GVG1(-1)	0.30	0.028	0.0000
14	10	2004-2013	AR1	GVG1(-1) AR1(-1)	0.05 0.48	0.031 0.096	0.1031 0.0000
15	10	2004-2013	AR1	GVG1(-2) AR1(-1)	0.082 0.489	0.034 0.117	0.0181 0.0001
Cluster 2 (BG, CZ, HU, PL, RO, SI, SK)							
16	7	2001-2014	AR2	DR2(-1) AR2(-1)	-0.30 0.66	0.054 0.263	0.2532 0.0000
17	7	2001-2014		DR2(-2) AR2(-1)	-0.15 0.49	0.05 0.10	0.1197 0.0000
18	7	2001-2014	AR2	EDL022 AR2(-1)	-4.17 0.68	4.48 0.06	0.3555 0.0000
19	7	2001-2014	AR2	EDL342 AR2(-1)	0.69 0.518	1.86 0.05	0.7817 0.0000
20	7	2001-2014	AR2	EDL582 AR2(-1)	0.897 0.245	4.445 0.020	0.9561 0.0000
21	7	2004-2013	AR2	GVG2 (-1)	0.41	0.138	0.0049
22	7	2004-2013	AR2	GVG2 (-1) AR2(-1)	0.07 0.86	0.032 0.024	0.0391 0.0000
23	7	2004-2013	AR2	GVG2 (-2) AR2(-1)	0.08 0.822	0.023 0.019	0.0007 0.0000
Cluster 3 (CY, EL, ES, IT, MT, PT)							
24	6	2001-2014	AR3	DR3(-1) AR3(-1)	0.22 1.04	0.11 0.075	0.0534 0.0000
25	6	2001-2014	AR3	DR3(-2) AR3(-1)	0.20 1.06	0.124 0.75	0.1177 0.0000
26	6	2001-2014	AR3	EDL583 AR3(-1)	-6.53 0.96	2.98 0.015	0.0311 0.0000
27	6	2001-2014	AR3	EDL343 AR3(-1)	-4.67 0.94	3.03 0.08	0.1270 0.0000
28	6	2001-2014	AR3	EDL023 AR3(-1)	1.51 0.96	0.942 0.015	0.0756 0.0000
29	6	2004-2013	AR3	GVG3(-1)	0.05	0.019	0.0110
30	6	2004-2013	AR3	GVG3(-1) AR3(-1)	0.26 0.04	1.45 1.76	0.1526 0.0843
31	6	2004-2013	AR3	GVG3(-2) AR3(-1)	0.98 0.00	0.02 0.01	0.9302 0.0000

Notes: AR – Activity rate for 65-74 age group; DR – age dependency ratio; EDL – share of a certain educational level graduates within the same age group; GVG - share of population 65-74 to enjoy a "good and very good" health condition.

Source: authors' estimations.

The health condition partially explains the variation in the elderly actiivity rate within each group of countries. In non-autoregressive models (Table 1, models 13, 21, 29), the statistical significance and the intensity of the predictor influence (considered with a one-year lag and tested for fixed effects) is the lowest for the third group (the SMEC). The state of health is most important for the CEE Countries. It is to be noted that these auto-regressive models were tested for errors autocorrelation with the Durbin-Watson statistical test.
From among the autoregressive models (Table 1, models 14, 15, 22, 23, 30, 31), only the one for the third group provided an insignificant coefficient for the predictive variable. (see Table 1, models 30, 31). That may also be explained through specific social and cultural peculiarities.

Many non-significant predictive variables occurring in the case of the second group of countries may be explained through the peculiar social, economic and cultural history and prolonged transition from closed and centrally planned economies and societies to capitalism and a globalised world. The cluster is certainly too heterogeneous with respect to social and individual behavioural patterns, to cultural and social values and one can hardly observe a specific behavioural pattern even within each society. In Romania, for example, some low educated people are keen to work in order to provide for their own and their families' needs, taking responsibility and seizing opportunities, while others reconcile to low living standards and rely on social aid. As the society hasn't yet managed to re-shape and establish a certain behavioural pattern for the older generations, supportive for sustainable development in the context of demographic ageing – either through community cultural values, or through legislative (fiscal, economic, social, etc.) instruments, as in the CNEs – the heterogeneity of individual attitude and conduct before and after retirement is an inherent consequence.

5. Conclusions

As an outcome of the progress of humanity, the ageing is generally acknowledged among the most important tendencies at global level, carrying social and societal risks as well as opportunities that bear on the social and economic sustainable development. High age dependency rates of old persons jeopardize the sustainability of the traditional pension systems and, generally, of the social protection systems. This may be an important source of social risks, such as the risk of poverty for the elderly, inadequate access to health care and long-term care services. It also may lead to low aggregate demand on long-term, altered dynamics for saving and investment, changes in the patterns of consumption, in the labour market structure and evolution, in the electoral and political representation patterns.

Yet, at the same time, the demographic ageing represents one of the greatest "celebrations" (UNFPA, 2012) of humanity's advance in health sciences and services, of the progress achieved in improving the quality of life in the world. It offers multifold opportunities and openings on every aspect of the sustainable development height

To manage risks in a constructive and resilient way, as well as to value and take advantages of opportunities, ageing societies need to reconsider attitudes and behaviours and to look positively at both ageing and the elderly.

In order to reestablish the intergenerational and intragenerational equilibrium and social equity, the policy makers around the world have looked into strategic solutions such as reforming the social protection systems – especially the pension schemes, stimulating fertility, re-distributing the responsibility amongst the social stakeholders and, certainly, extending the active lives of the elderly – in society and in the labour market. To this last end, actions should be directed towards shaping the attitudes of the individuals and communities, encouraging healthy lifestyles along the active live and ensuring proper access to information and health services for the needy, on one hand, and towards improving the permeability and absorptive capacity of the labour market for the aged workers, on the other. Life-long learning programs, incentives to upgrading the educational level along the adult life, programs assessing the interests and opportunities for the older people looking for a change in their professional lives as well as a stimulating fiscal framework that would turn the employers open and willing to create the necessary working environment and conditions for older workers are some of the instruments that have already proved efficient in leading countries around the world.

This paper contributed with qualitative as well as quantitative inputs to substantiating the above statements. The assumption of culturally determined post-retirement behaviour has proven accurate. The social models, built on historically developed values, are relevant with respect to the attitude towards engaging in paid work of the older people. Our analysis unveiled specific aspects for each group of countries, regarding each of the considered determining factors. In Romania, as well as in other CEE and Southern-Mediterranean countries, raising societal awareness, empowering and assigning responsibility to individuals regarding health preservation and income adequacy are key strategic objectives to be achieved in order to successfully take the challenge of ageing confronting the humanity aspiring to sustainable development.

Bibliography

1. Arts W, Gelissen J, 2002, "Three worlds of welfare capitalism or more?" *Journal of European Social Policy* 12 (2), pg. 137-158.
2. EC (European Commission), 2016, "Employment and Social Developments in Europe. Quarterly Review, Autumn 2016", DG Employment, *Social Affairs & Inclusion.*

3. EC (European Commission), 2012, "Active Ageing Report", *Special Eurobarometer* 378 Wave EB76.2, DG ESAI.

4. Esping-Andersen G., Gallie D., Hemerijck A., Myles J., 2001, "A New Welfare Architecture for Europe?" Report submitted to the Belgian Presidency of the European Union.

5. European Commission (EC), 2009, "Intergenerational solidarity: Analytical report", Flash EB Series #269, European Commission, Brussels.

6. European Commission (EC), 2015, "The 2015 Ageing Report. Economic and Budgetary Projections for the 28 EU Member States (2013-2060)". *European Economy* 3/2015, ISSN 1725-3217.

7. Fenger H.J.M., 2007, "Welfare regimes in Central and Eastern Europe: Incorporating post-communist countries in a welfare regime typology", in *Contemporary Issues and Ideas in Social Sciences.*

8. Ferrera M., 1996, "The "Southern" Model of Welfare in Social Europe". *Journal of European Social Policy* 6 (1), pag. 17-37.

9. Stegeman I, Otte-Trojel T, Costongs C, Considine J, 2012, "Healthy and active ageing", Eurohealth, http://www.healthyageing.eu/sites/www.healthyageing.eu/files/featured/Healthy%20and%20Active%20 Ageing.pdf

10. UN, 2009, "World Population Ageing" *Economic and Social Affairs*, Working Paper np. 212

11. UN, 2011, "World Population Prospects. The 2010 Revision, Vol I." Economic and Social Affairs, A313, http://esa.un.org/wpp/Documentation/pdf/WPP2010_Volume-I_Comprehensive-Tables.pdf

12. UNECE / European Commission, 2015, "Active Ageing Index 2014: Analytical Report", Report prepared by Ashar Zaidi of Centre for Research on Ageing, http://www.age-platform.eu/images/stories/ Publications/AAI_2014_Report.pdf

13. UNFPA, HelpAge International, 2012, "Ageing in the Twenty-First Century: A Celebration and A Challenge", http://www.unfpa.org/sites/default/files/pub-pdf/Ageing%20report.pdf

14. Vasile V, Tache I, Tudor C, Volintiru C, 2012, "Analiza evoluţiilor poiticilor sociale în UE în ultimii trei ani – pensii suplimetare / private şi impactul îmbătrânirii populaţiei". Institutul European din România, SPOS 2011, Studiul nr. 4.

15. WHO, 2002, "Active Ageing – A Policy Framework", www.who.int/hpr/ageing

16. WHO, ISSA, ILO, WB, 2000, *Social Development and Ageing. Crisis or Opportunity?* Social Panel at Geneva 2000 – Brochure.

17. World Economic Forum (WEF), 2015, "Global Risk Report", http://www3.weforum.org/docs/WEF_ Global_Risks_2015_Report15.pdf

18. Zaidi A, Gasior K, Hofmarcher MM, Lelkes O et al, 2013, "Active Ageing Index 2012. Concept, Methodology and Final Results". Research Memorandum / Methodology Report, European Centre Vienna, www.euro.centre.org/data/aai/1253897823_70974.pdf