

THE ELDERLY DEPENDENCY RATE IN URBAN AREAS OF TRANSYLVANIA REGION BETWEEN 1992 AND 2021

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ABSTRACT. – **The Elderly Dependency Rate in Urban Areas of Transylvania Region between 1992 and 2021.** Population ageing becomes a serious issue not only in developed countries, but also in a post-socialist country such as Romania. Nowadays, the demographic tendencies of ageing trends are visible in the demographic dynamics of developed countries, especially in Central and Eastern European Countries in the context of economic growth and population loss. For example, in Romania, it is noticeable in urban areas and rural areas where the demographic trajectories show the presence of a certain demographic phenomenon in age structure of population such as “population ageing”. In the last decades, Romania has entered a period of rapid and dramatic ageing demographic phase. In this respect, first we investigate the phenomenon of population ageing in Transylvania region. Secondly, the paper presents the calculation of elderly dependency rate based on demographic statistical data provided by the National Institute of Statistics. Thirdly, it drives some possible social-economic effects of the progressive process of ageing tendency.

Keywords: *Ageing population, elderly people, population decline, Romania, Transylvania region.*

INTRODUCTION

Nowadays, demographic ageing is a topic of high importance in Europe and worldwide, in the context of concerns related to the impact of the rise in the ratio of the elderly in the society’s functional organization (Stoica, 2011). The population ageing signifies “the process of change in the population’s age group structure, in the sense of an increase in the older adult group’s ratio to the detriment of the young group, as a visible and long-term trend” (Stoica, 2011).

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Population ageing is considered to be by United Nations (2002) a “process by which older individuals become a proportionally larger share of the total population”. This process is a consequence of two main factors: low fertility rate and longer life expectancy (Diaconu, 2002), also the international migration, the improvement in health in general, and in particular, at higher ages allow an impetus to the ageing process (Asandului, 2012).

Population ageing is determined by the presence of several factors: prolonging the duration of life, a decrease of the proportion of the young population because of a fertility rate that is below the level of replacement and out-migration for this category of the population. It is a social-demographic issue that affects an increasing number of people, and its consequences affect the entire society (Nemenyi, 2011). Demographic ageing is a global phenomenon being a most important issue not only in developed countries like the USA, Japan, China, but also in East and Central European Countries. In the European countries, the percentage of the population over 65 increased from 15.60% in 2000 to 17.38% in 2010. European countries population aged over 65 years old (%) will increase to 20.06% in 2020 and to 23.55% in 2030, according to Eurostat predictions (Asandului, 2012).

Driven by fertility decline and the continuing extension of the life expectancy, the process of population ageing has not been uniform across time and space. The dynamics and timing of the ageing trend varies, depending on the country and the geographical area (Reynaud, et al., 2018). The absolute values as well as the relative size of the elderly population continues to grow in the EU countries where the ageing index raised to 132.3% reaching high values in countries such as: Italy 171%; Germany 158.5%; Portugal 157.4%; Greece 152.5%, Bulgaria 148.1%, Hungary 131.6%, and 117.3% in Romania (Țăruș, et al., 2021).

According to W. Lutz, W. Sanderson and S. Scherbov, the demographic statistics indicate a continuous ageing of the world's population throughout the century. The median age of the world's population would increase from 26.6 years in 2000 to 37.3 years in 2050 and then to 45.6 years in 2100 (Lutz, et al., 2008). According to Eurostat, the share of people aged 80 years or above in the EU's population is projected to have a two-and-a-half-fold increase between 2021 and 2100, from 6.0 % to 14.6 % (Eurostat, 2021). In the last decades, Romania not only experienced a difficult economic transition, but also experienced a decline in dynamics, facing a declining birth rate and fertility rate, out-migration phenomenon and ageing trends in rural and urban areas (Popa & Turek Rahoveanu, 2019). For example, in Romania, the proportion of population aged over 65 increased from 12.50% in 2000 to 14.94% in 2010. In 2020 the

elderly population will be 17.43 % and in 2030 it will be 20.25%. These increasing values indicate that Romanian population is visibly ageing (Asandului, 2012).

Hence, Romania is facing demographic prospects that are like other European Union (EU) countries (Hoff, 2011). Since 1990, the age structure of the Romanian population has shown a slow and continuous process of population ageing due to lower fertility, external migration, and an increase of life expectancy (Bodogai & Cutler, 2014). According to statistical data submitted by Eurostat, Romania will have one of the oldest populations in the EU in 2060. Also, the dependency ratio of the elderly, i.e., the ratio of those aged 65 and above to the active population, aged 15-64, will grow alarmingly, exceeding 60% by 2060 (Popa & Turek Rahoveanu, 2019).

All demographic projections for Romania point to a rapid expansion of the elderly population in the coming decades. Specific projections vary. For example, the demographer Gheţău (2007) has suggested that the population aged 60 years and older will increase from 19.3% in 2005 to 33.3% in 2050. Eurostat projections indicate an increase in the 65+ population from 14.9% in 2008 to 30.9% in 2050 and to 35.0% in 2060 (Giannakouris, 2008).

Regardless of the specificities, all projections converge on a common conclusion: rapid population ageing will occur in Romania in the coming decades (Bodogai & Cutler, 2014). The Transylvania region is currently facing the complex social and economic consequences of a population ageing process and deterioration of all demographic structures. The accelerated ageing process refers to the numerical increase of the segment of the elderly population aged 60–65 years and above out of the total population, because of the decrease in the fertility and mortality rate conceded by the increase in life expectancy. The ageing trends reached high values after 1992, marking a demographic transition from the traditional reproduction model with a high birth and mortality rates to the post-communist model represented by low birth rates and moderate mortality rates (Țăruş, et al., 2021). It has been shown that the age structure changing process characterized by the increase of the elderly segment against the young segment can lead to a non-sustainable trend on the long term (Gheţău, 2012). This case study highlights the fact that demographic ageing has become a topic of social, economic, healthcare and even cultural debates because of the scale of its effects and impact. It is shown that specific combinations of declining fertility and mortality trends have resulted in an accelerating speed of ageing trends in most societies, including developing countries (Lutz, et al., 2008), as well as in Transylvania region.

Studying the demographic ageing process in Romania, especially the elderly dependency rate, we can settle new challenges regarding economic and social development. The case study approaches the ageing process being more visible on a local scale where urban areas are facing a range of demographic changes with different intensities.

The aim of the present study is to show the evolution of the elderly dependency rate in the reference interval 1992-2021 in Transylvania region to establish the social and economic impact of demographic ageing phenomenon.

DEMOGRAPHIC TRAJECTORIES OF POPULATION IN TRANSYLVANIA REGION

In the period between 1992 and 2021, demographic trajectories of the population in Transylvania region show a dramatic population decline emphasized by certain demographic tendencies such as low birth and fertility rate, out-migration, and population ageing. In 1992, the total population in Transylvania region on 1 January was 4,594,635 inhabitants, and until 2021 the population decreased by 215,689 inhabitants (-4.69%) reaching the value of 4,378,946, while 20.1 million people were recorded in the entire country in 2021, compared to 22.8 million in 1992, representing a decrease by 13% (Fig. 1).

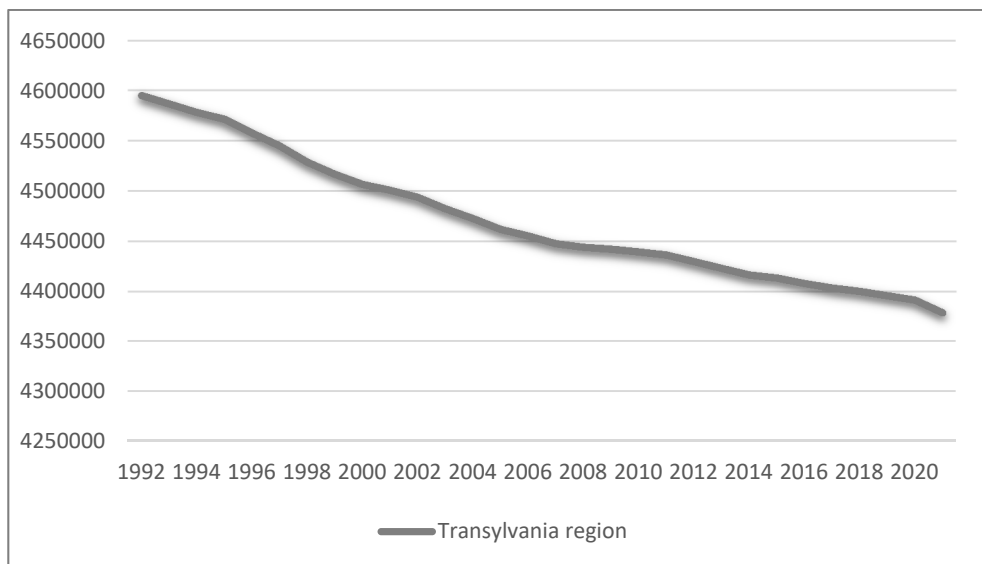


Fig. 1. Total population in urban area of Transylvania region

In the time frame between 1992 and 2021, the demographic tendencies in Transylvania show a steady increase in the number of elderly people. The demographic decline is characterized by a major change of the age structure of total population: the age group 0-14 years decreased by 314083 people; the age group 15-64 years decreased by 143291 people, while on the contrary the age group 65-85+ increased by 333274 people (Fig. 2).

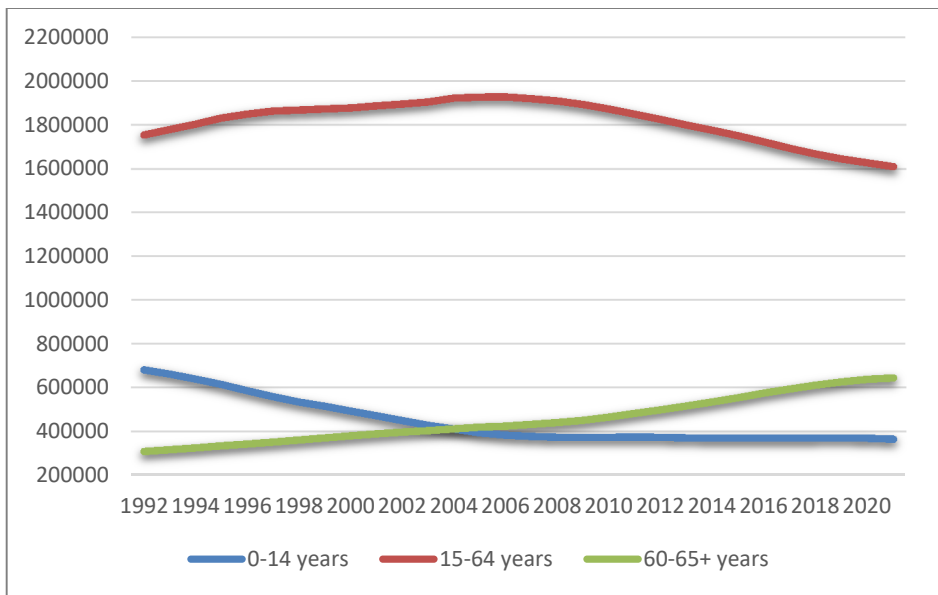


Fig. 2. Total population development by age groups in Transylvania

The INS (National Institute of Statistics) demographic projections distinguish two trajectories of population development in Transylvania: the first one between 2010 and 2015 with a moderate loss of population, the second one between 2015 and 2050 when the total population is forecasted to decline sharply (INS, 2017).

Population ageing is a long-term trend which began several decades ago in Europe, part of a social, political and cultural issue in Transylvania region. This trend is visible in the numbers recorded by age structure of the population with an increasing share of elderly people coupled with a declining share of working-age people in the total population (Eurostat, 2021).

MATERIALS AND METHODS

Many indicators have been used to study population ageing. Unfortunately, these indicators often depend on the specification of an arbitrary age threshold that defines the elderly population. For example, in developed countries – such as Romania – age 65 defines the lower margin of the elderly population as this age is usually associated with the age of retirement for the men, which starts at age 62 for the women. In this case study, we use the elderly dependency rate, and it seems to be one of the more accurate measurements to analyze the ageing process in relation to the adult active population.

The elderly dependency rate is a conventional value of elderly dependency, which defines that the elderly population (60+) depends on adult population (15-59), and generally the result is multiplied by 100. The final result gives the number of elders per 100 adults (Mishra, 2011).

$$\text{The elderly dependency rate (\%)} = \frac{\text{Elderly people (60 years and above)}}{\text{Adult-active people (15-59 years)}} \times 100\% \quad (1)$$

For Transylvania region, we computed the elderly dependency rate on January 1 across the urban areas of ten counties during an observation period of 31 years (1992-2021).

The data show the evolution of the elderly dependency rate in urban areas of Transylvania region choosing the 1992-2021 timeline period, while statistical data were collected from Tempo Online database of the National Institute of Statistics (INS).

In general, the ageing phenomenon is the result of the interplay of two forces of population dynamics – fertility and mortality. There are two processes involved in the ageing of a population – ageing due to change at the base, consequent to the decline in fertility, and ageing due to change at the apex, responsible to the mortality reduction in the elderly population (Mishra, 2011). In this respect, our case study analysis allows us to consider the two principal determinants of ageing: fertility reduction and life expectancy increase.

RESULTS AND DISCUSSIONS

The ageing process has had a progressive course in Transylvania region, which began in the latter half of the 20th century, particularly in the countryside, where rural areas were facing major demographic changes and appeared to be

at greater demographic risk (Epure & Guran-Nica, 2014). These demographic changes occurred in the age structure of the population are also affecting the urban areas in Transylvania region.

The calculation of the elderly dependency rate in urban areas show that Transylvania region has experienced an accelerating process of ageing from 17.63% in 1992 to 39.90% in 2021.

This increasing elderly dependency rate refers to the existence of cumulative causes as low birth and fertility rate, out-migration, and an increasing life expectancy. Therefore, an important impact had the shift occurred in age structure of urban population, hence changing the total population evolution. The alternative up and down flows of total urban population evolution are changed into an upward shift characterized by an increasing number of elderly people to the detriment of a fewer number of adult active people.

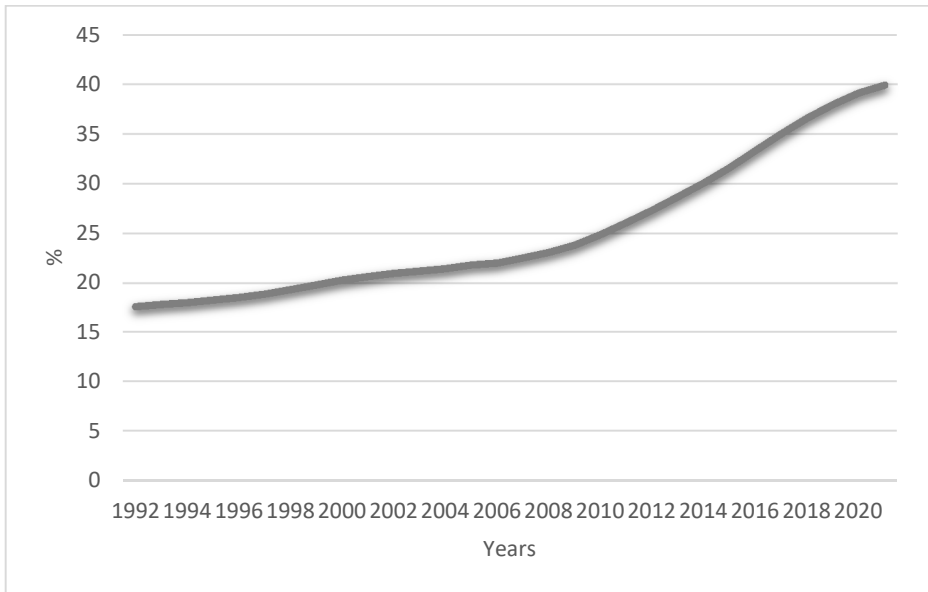


Fig. 3. The elderly dependency rate in urban areas of Transylvania region

In the interval 1992–2021, the share of elderly people in the urban areas increased up to the middle of the period, then decreased by the end of 2021. It prominently reverses its tendency of decreasing trend due to the demographic shifting of age groups.

A significant increase of the elderly dependency rate from 11.36% in 1992 up to 28.26% in 2021 is evident in urban areas of Sălaj County, followed by Bistrița-Năsăud County where the elderly dependency rate increased from 12.80% in 1992 up to 32.47% in 2021. This slight increase is the direct consequence of a low fertility rate, and it was also due to less job opportunities and a progressive out-migration of the active population. In these two counties, the elderly population has an incipient increase which means that the changes in demographic dynamics are more evident in the middle of the interval after 20 years, as the values registered in the 2010s were 15.77% in Sălaj County and 18.99% in Bistrița-Năsăud County (see Fig. 4).

As expected, the dependency factor in these urban areas is much lower than in the rural areas, since towns provide more job opportunities for young and active adult people, and increasing values strictly determine a light process of demographic ageing.

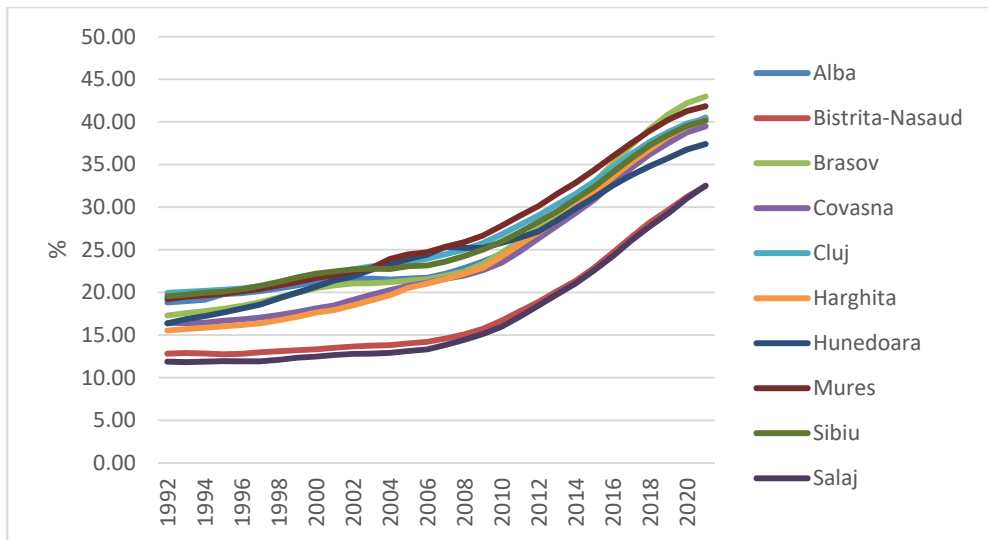


Fig. 4. The elderly dependency rate in urban areas at the county level

An important increase of the elderly dependency rate ranging from 15% and up to 43% in the interval 1992–2021 has a visible trend in urban areas of Harghita, Covasna, Hunedoara, Cluj, Alba, and Sibiu counties. In the urban areas of Alba County, the elderly dependency rate increased from 18.80% in 1992 up to 40.58% in 2021 (see Fig. 4). Also, an important growth of the elderly dependency rate from 19.94% in 1992 and up to 40.39% in 2021 has been

recorded in the urban areas of Cluj County. This intermediate area of increase (15–43%) of the elderly dependency rate is considered a constant growth due to the increasing trend of the elderly people which raises the impact of the social-economic pressure on adult active people. In this regard, social-demographic circumstances are questionable, as one of the most numerous age groups (55–59) will soon reach retiring age, which will dramatically increase the numbers of the dependent population, resulting in higher pressure on the active population (Epure & Guran-Nica, 2014).

In the 1992–2021 interval, a major increase of the elderly dependency rate is evident in the urban areas of Mureş and Braşov counties, where it ranges from 20% in 1992 and up to 43% in 2021 (see Fig. 4). This means that the young and adult active age groups are struggling to catch up with the social-economic benefits in the context of the ageing tendency, resulting in an increase of the elderly population. The elderly dependency rate registered an increase trend from 17.30% in 1992 up to 42.98% in Braşov County and from 19.21% in 1992 up to 41.84% in 2021 in Mureş County, raising the possibility to extend the retirement age and the opportunity to actively involve the elderly people in the labor market. Meanwhile, the number of young people is decreasing, and the future generations of active adult people will have to support a higher number of non-actives.

The ageing phenomenon has become a major issue in the urban areas of Transylvania region, where around the year 2020 the urban population would record approximately 50% (Barthelemy, et al., 2009) of the elderly population having a major influence on population age structure shifting.

THE SOCIAL-ECONOMIC EFFECTS OF POPULATION AGEING

Europe is currently facing the highest ageing rate worldwide. For example, Romania, as an EU-member country since 2007, has been coping with its own demographic difficulties, for example an overall population decline, an increased proportion of elderly and a longer average life-span, a majority of elderly females (Epure & Guran-Nica, 2014). In 2012, individuals aged 60 and above represented 22% of Romania’s population, with 25.5% living in rural areas and 19% in urban areas.

The ageing phenomenon has an increasing trend at national level and regional level, where the total urban population needs to face significant social-economic implications. The social-economic implications are reflected in the impact of the ageing process of population. The ageing process is the degree of

demographic dependency. When it comes to the ratio between the inactive population groups (both young and elderly) and the active population (15 to 59 age group), this indicator provides valuable information regarding the economic burden placed on the active productive population. This is based on the concept of "dependent" being understood as active, while the "able" population can also be viewed as maintained (namely economically dependent) (Epure & Guran-Nica, 2014).

In this case study, we highlight some social-economic effects regarding population ageing, such as:

- The higher number of elderly people, mostly retired and inactive, generates a greater pressure on the active adult people, and the social and economic issues become even more acute as the existing pension system cannot adequately sustain the increasing number of older populations.

- At a higher age, physical and cognitive performance decreases. Initially, this can still be compensated by experience, but a decline in labor productivity can be expected with increasing age. However, policy makers sustain the undeveloped potential of elderly people and encourage them to participate actively in the economic and social life.

- The increasing number of elderly people will put pressure on public sector benefits such as adult care, health care or pensions which will increase considerably because of an accelerating process of ageing. Moreover, the higher number of elderly people will create pressure on social and economic policies.

- Also, the health system needs to adjust and improve the health care services to meet the increasing demands of the elderly people.

- An ageing society is characterized by declining labor productivity and rising price levels; the international competitiveness of the economy is declining. As a result, this society will export fewer goods and services and tend to import more instead. This will result in a decline in the current account balance (Petersen & López, 2019).

- A high proportion of older people leads to a decline in the overall savings rate. Likewise, this means that the share of consumer demand in GDP is increasing. As a result, fewer goods and services are left for export. Thus, the difference between exports and imports is shrinking. If the country already has a current account deficit, it will become larger (Petersen & López, 2019).

- If a certain age group consumes more goods and services than it produces itself, this has a price-increasing effect. This is the case with children, young people, and pensioners, so that an inflation-increasing effect can be expected from these groups (Petersen & López, 2019).

One of the biggest challenges of demographic change is that the consequences of ageing population will show up simultaneously in the public service systems, e.g., in the pension scheme, the healthcare and care systems. Thereby, the consequences in one system will be exacerbated by those in other spheres. To ensure social and economic participation across generations, the public service systems should be made resilient to demographic change, which means that they should be adaptable to the requirements of the ageing trends and stabilized through coordinated and innovative measures (Esche, et al., 2019).

CONCLUSIONS

During the past thirty years, the tendency of the degree of elderly dependency rate to go up is undoubtedly determined by a rapid process of population ageing. This case study concerning Transylvania region shows that urban areas are facing demographic changes due to a decrease in the birth rate, an increase in the mortality rate, and a negative migration balance with increase in the life expectancy.

The higher ageing intensity for the urban areas of Transylvania region can be related to the dramatic decrease in the fertility rate and the birth rate; moreover, one needs to take into account the out-migration of young and skilled people for work purposes in developed countries. In these social-economic circumstances, the population ageing becomes a global phenomenon with long-term consequences on the economy. The Transylvania region is facing major demographic changes in the context of demographic decline, as the ageing process has a higher impact on the changes within the age structure of the population. The number of elderly people increases to the detriment of the number of active adult people, which steadily decreases. Additionally, the young people and the active adults have manifested shrinking tendencies due to the dynamic population ageing process.

As the elderly dependency rate increases, there is a decline in the size of the workforce that is potentially available to take care of the older generations and this has already led to an increased burden on government finances, changes to the statutory retirement age, and in some cases even lower levels of pension provision (Eurostat, 2020).

The Romanian policy makers should take the necessary steps now and start adjusting to these issues to avoid the risk of endemic poverty among elderly people. From this point of view, a coherent medium-and-long-term development

program should be drawn up, capable to rebalance the demographic structure and solve many of the problems associated to rapid ageing phenomenon (Epure & Guran-Nica, 2014).

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