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STUDY REGARDING THE EFFECTS OF DEMOGRAPHIC TRANSITION ON LABOR MARKET AND PUBLIC PENSION SYSTEM IN CENTRAL AND EASTERN EUROPE

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Abstract:

Population and the quality of labor force are the “strengths” features’ that ensure socio-economic development of a country. The last decades can be characterized as a transitional period, in which countries of European Union and especially the countries of Central and Eastern Europe are facing a demographic decline. Reduced birth rate, ageing and migration are factors’ which create a lot of pressure, both on labor market and public pension systems, items correlated with the population structure. In this paper we have presented the demographic situation and the size of migration in five countries of Central and Eastern Europe. The direct linkage between population structure, labor market and public pension systems represents, in transitional context, a threat to budget sustainability, especially in Romania. We consider that the reformation has to be adjusted with the new socio-economic conditions, finding new solutions for increasing birth rate, decreasing the “exodus” of young population and stimulating economic activities.

Key words: *public pension systems, demography, Central and Eastern Europe, labor force*

1. Introduction

Actual demographic context is characterized by relocation of population to strongly industrialized and socio-economic developed areas. Eurostat forecasts regarding European countries present an ageing trend, as a result of the decreased birth rate and increased life expectancy of population. These expectations reveal into a lower share of young population active on labor market and a larger proportion of elderly people that must be provided with the adequate financial support.

Financial protection of elderly is made through public pension systems, which in Central and Eastern Europe (CEE, from this point forward) are based on social solidarity,

contributions and redistribution between generations. Due to these fundamental principles, the public pension systems in these countries are drawn up as *pay-as-you-go* (PAYG, from this point forward) pension systems, directly correlated with labor market and strongly influenced by the evolution of demographic indicators.

The paper regards the public pension systems in CEE countries in the context of demographic transition. The purpose of this article is to present the relationship between demographic situation, labor market and PAYG public pension systems. The structure of the paper is as follows: in the first part it is presented in a synthetic way the *status quo* of pension systems, highlighting the linkages between contemporary economies: globalization, migration and free movement; the second part aims to review the current stage of research in the field both at national and international level; the third part presents the research methodology and its implications in structuring the main components and elements of the study; the fourth part represents a *radiography* of the demographic structure of CEE countries, and also a careful analysis of its effects on labor market and public pension systems; the last part of the article presents the main conclusions and final considerations of the study.

2. Literature review

In globalization context, free movement of persons and migration to developed countries hoping for a higher life standard got more visible in the latest decades. Persons who migrate “bear” their own national identity, cultural values and ideology, nowadays society being governed by cultural, ethnic and religious diversity. Bauman (2011) identifies in contemporary society a cultural pluralism, tolerance and integration of different socio-cultural identities becoming an economic force. From this point of view, European Union (EU, from this point forward) is the most advanced form of integration, cooperation and regional cohesion (Deacon, 2012).

Implications of community freedoms on socio-economic characteristics of one country are multiple (Ionescu, 2008). Opportunities to develop are countless, but the negative effects of business relocations shed a shadow over these possibilities. Unemployment and poverty risk related with the movement of economic activities impact entire communities (Cotoi, 2009). On the other hand, it should not be overlooked the implications of transfer prices, international double taxation and *treaty-shopping* practices on economic growth (Dumiter & Boiță, 2017).

From the point of view of social protection right, the principle of territory becomes inappropriate for migrating people. Universal Declaration of Human Rights states the right of all individuals to equality, dignity, respect and social protection (United Nations, 1948). However, national sovereignty implies that a country has the freedom to implement a social protection system in order to ensure its’ own citizens, and from this regard, the host country has no social obligation towards non-resident persons.

The problem of immigrants regarding the right to social protection was partially solved through the adoption of the International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families (UN, 1990) which establishes the obligation of a non-discriminatory treatment of immigrant people in a territory of a country,

compared with its own citizens. Nevertheless, the transferability of the social rights between different social protection systems still faces difficulties. Removing the barriers of social protection rights portability at international level has a positive effect on the wellbeing of the beneficiaries and to economic development of the countries (Holzmann & Koettle, 2015).

Social protection system is defined as the manner through which is respected the primordial rights of the individuals, namely the right to health care, the right to financial security of children and old peoples, but also of persons which due to disabilities or pathologies cannot obtain incomes (ILO, 2012). The aim of social protection systems is to decrease the social and economic vulnerability among the marginalized groups with a precarious material state (Sabates-Wheeler & Devereux, 2008).

Esping-Andersen (1990) analysis the social protection scheme through the relationship between individuals, state and organization of the market and identifying three typologies of social protection systems. According to the author, Anglo-Saxon countries prefer a liberal social protection system, characterized by independence, individual responsibility and a minimal intervention of the state. Also, in Nordic countries social protection is made through mutual participation and responsibility of citizens, being promoted equality, equity and universality of provisions. On the other hand, in continental countries social protection systems are based on social solidarity, the state having the role of distributing the provisions.

Typologies identified by Esping-Andersen are not found in pure form in contemporary society, but it can be noted the tendency towards a certain type of social protection system. In CEE countries, the organization of social protection systems reveals the affinity for conservative typology, in which state intervention is wanted in order to maintain the functionality of the system (van Kersbergen & Kremer, 2008).

Pension system is a part of social protection structure which regards towards the situation of elderly, which due to old age cannot perform professional activities to obtain the resources necessary to meet the basic needs and present a high level of poverty and severe material deprivation (Begum & Wesumperuma, 2012). Therefore, pension systems have as objective decreasing poverty, ensuring an adequate financial flow for a decent life and smoothing consumption at retirement (Lanoo et. al., 2014; Littlewood, 2014).

Functionality of public pension system in CEE countries is based on collecting social contributions from people active on labor market, the obtained resources being used for the payment of current pensions, according with the principles of PAYG system. The success of these issues is given by the "equilibrium between the expenditures of the pension system and the incomes from the contributions payed by active workers" (Godinez-Olivares et. al., 2015, pp. 2). However, if the active population on labor market decrease, and the number of beneficiaries, as well as the period for which the benefits are provided, increase, it will show up a mismatch between budgetary incomes and the expenditures with provided benefits.

World Bank's solution to reduce the demographic risk of PAYG public pension systems is the diversification of income sources of elderly through privately managed pension funds. However, Boadway & Keen (2000) defend the effectiveness of the state in ensuring the citizens against social risks due to the taxation autonomy and the role of

income redistribution. Therefore, it was observed that the states that want to decrease the income uncertainty usually prefer the PAYG pension system, restricting the private pension funds and the investing risk associated with them (Rivera-Rozo et. al., 2018).

The efficiency and soundness of a national pension system is given by the adequacy level to national socio-economic conditions (Balteş & Jimon, 2019). Chybalski (2016) considers that the efficiency of a pension system should be analyzed from two perspectives: the beneficiary's views, which wants maximum benefits, and lender's views, which want to minimize the costs.

3. Research methodology

The aim of this article is to show up the relationship between demographic context, labor market and PAYG public pension systems. Therefore, based on data provided by Eurostat, we proposed to highlight the effects of the evolution of demographic indicators on labor market and public pension systems in five CEE countries, namely: Czech Republic, Hungary, Poland, Romania and Slovakia. For this reason, the research methods used are the following: causal method to reflect the cause-effect relationship between demographic indicators, structure of labor market and public pension systems, comparative method to point out the similarities and divergences between those five CEE countries, statistical and graphical method to synthesize and centralize statistic data and the evolution of macroeconomic indicators related with the approached subject.

4. Demographic structure in CEE countries

CEE countries, according with data published by Eurostat, present an oscillatory evolution of demography (Figure no. 1). It can be noticed a change of average population between 1960 and 2018, except Slovakia where the average population records a progressive level for the whole period. Also, Czech Republic has an increasing trend of the average population, but it achieves a decline period between 1898 and 2003. In countries like Hungary, Poland and Romania average population presents a significant growth until 1982, respectively 1998 and 1990. Up to 2018, the values of this indicator decrease, the higher value being registered in Romania (-16%), followed by Hungary (-9%) and Poland (-2%). These evolutions are the result of negative birth rate and migration.

Natural change of population decreased in all five CEE countries, mainly due to reduced birth rate. Birth rate records the lowest values in Poland (from 2.06 children/women in 1990 at 1.48 children/women in 2017) and in Slovakia (from 2.09 children/women at 1.52 children/women), followed by Hungary and Czech Republic (with a drop of 0.33 children/women, respectively 0.21 children/women). Romania has the minimum decline of birth rate from all five CEE countries – 0.12 children/women.

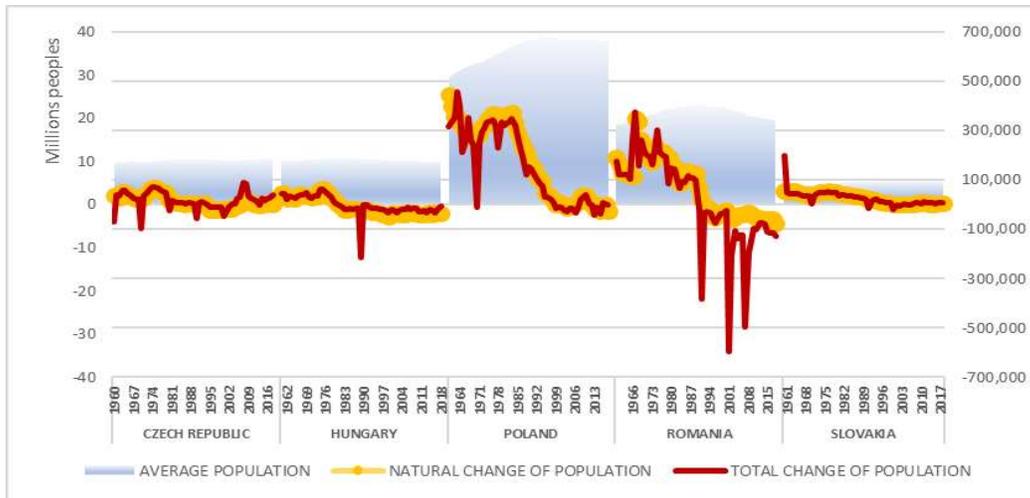


Figure no. 1. Average population, natural change of population, total change of population in CEE countries between 1960 and 2018

Source: Own processing based on data published by Eurostat

Fertility is influenced by women's age at birth. It can be noticed the growth of the number of births after 25 years and up to 35 years, so the average age of women at birth increased in the last 27 years in all analyzed countries. This indicator has the higher value in Czech Republic (+5.2 years, in 2017 the average age of women at first birth is 28.2 years) and Hungary (+4.2 years, and the average age of women at first birth is 28 years). In Poland and Slovakia, the average age of women at first birth is 27 years in 2017, and the average age of women at birth is 29.8 years in Poland, respectively 28.8 years in Slovakia. In Romania, the average age of women at birth increased with 2.4 months, and the first birth of women it happens at 26.5 years.

Total change of population, even if it follows the natural change of population in these five European countries, due to migration, reflects a different situation, being noted some periods with significant variations in each country. Thus, the minimal points indicate the aggregate result of the negative natural change of population and negative migration. From this regard, Slovakia presents the most moderate situation with three periods of slowly decline in 1970, 1991 and 2000-2003. At the opposite side is found Romania, country in which can be noted that after 1990, the population dramatically decreases, the "exodus" periods being: 1991, 2001 and 2007. Likewise, the other countries present periods with significant reduction of population, respectively 1970 in Poland, 1989 in Hungary and 1970, 1980 and 1990 in Czech Republic. Forecasts made by Eurostat suggest a remarkable decline of population until 2100, where the lowest values being achieved in Romania, Slovakia and Poland.

Bricker & Ibbitson (2019) argue that the decline of population is a process that will characterize all countries of the world, the main cause being the economic development. Industrial revolution led to the concentration of population in urban areas, places where the labor market offered multiple opportunities for earning incomes. If in rural areas, the children were regarded as an "investment" and also "help" for housework, in cities the children become "expenditure". Even more, in urban areas, can be found more cultural and

educational factors, which over time, influenced and changed the role of women in society. The right to education, the right to work and the right to social protection contributed to the decrease of birth rate. Pradhan (2015) shows that a higher level of women education leads to a lower number of pregnancies and births.

Regarding the structure by age group, beginning with 1960 until 2018 is observed the increase of population aged 65 years and over, concomitant with the decrease of the share of all other age groups. The most significant reduction of population is recorded at age group 0-14 years in 2018, compared with 1960 decrease with 12% in Slovakia and Poland, 10% in Romania, 7% in Hungary and 6% in Czech Republic. The share of population aged between 15 years and 39 years has also a diminishing trend, meanwhile the population from the age group 40-64 still have a positive trend. These evolutions led to the growth of average age of population with 12.3 years in Poland, 11.9 years in Slovakia, 11.2 years in Romania, 8.8 years in Czech Republic and 8.5 years in Hungary. Also, old age dependency ratio had notably rise between 1960 and 2018. The greatest increase, compared with 1960 are achieved in Romania (+15%), Poland (+13%), Hungary and Czech Republic (+12%). Goldin (2016) presents also the positive aspect of population ageing, which is the accumulation of human capital having the knowledge and also the experience needed to support economic development.

Nowadays, demographic situation highlights, certainly, the decreasing trend of the population in all five CEE countries, and the ageing trend of population. Under these conditions, the sustainable development of these countries requests innovation and new solutions to maintain the life quality of people (Panța, 2019), both regarding the incomes and health care and social protection rights (Creț, 2012).

Population decline represents a threat as well to labor market productivity and also to pension systems sustainability. The measures to stimulate the birth rate does not succeeded to reach the minim replacement rate for maintain the population, respectively 2.1 children/women. As result, a solution would be attracting foreign population to replace the national demographic decline (Pânzaru, 2015).

Immigration must be regarded as an economic policy that should sustain economic development and labor market productivity, as well as the equilibrium between contributors and beneficiaries of pension systems. Attracting foreign human capital, accepting and including the immigrants, interaction and social cohesion, according to Heyneman (2000), can be maintained only by transparence, common values, commitment and social participation. Even so, cultural and ethnical diversity represents a barrier heavily to overcome in formation of national and community unity.

All five CEE countries present a specific situation regarding the migration (Figure no. 2). In the last 10 years, Hungary and Slovakia have a positive net migration, succeeding to attract an average number of over 21,000 people, respectively over 3,000 immigrants each year. Czech Republic recorded between 2010 and 2012 a negative net migration, but on average attracted approximate 25,000 immigrants every year. At the opposite side, is found Poland and Romania, which in the last 10 years have a negative net migration and lost every year over 100,000 people from national population. The emigration areas preferred by the population of these five countries are community countries, North America and South-East Asia.

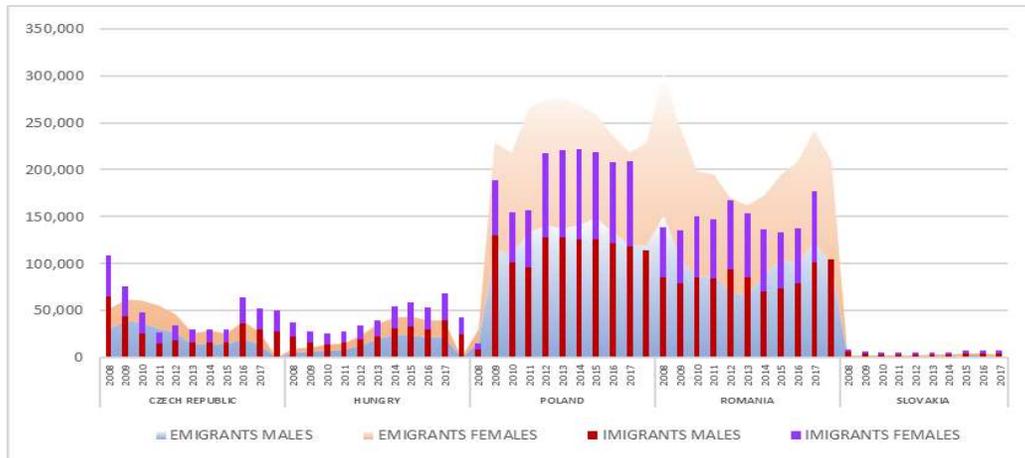


Figure no. 2. Migration of population in CEE countries between 2008 and 2017

Source: Own processing based on data published by Eurostat

Asylum and citizenship applications have a more reduced number. Compared with the number of immigrants, the asylum applications represent 53.6% in Hungary, 10% in Poland, 8% in Slovakia, 2.7% in Czech Republic and 0.4% in Romania. Citizenship applications for one country from the five CEE countries record even a smaller share, not exceeding on average 0.3% of the number of immigrants. On average, the citizenship is given for less than 30% of applications, the largest share being owned by the requests initiated according to the provisions of the Geneva Convention for refugees (1951). Between 2008 and 2018, Romania releases positive decisions for citizenship applications of refugees in case of 830 people, Czech Republic for 140 people, Hungary for 115 people, Poland for 90 people and Slovakia for 15 people.

Socio-economic integration of immigration is facilitated by educational level. The employment rate of people that have graduated primary education is contained between 17.5% and 45.6%, increasing in case of secondary education at values between 62.5% and 74% and reaching, in case of tertiary education, values over 76.3%. It can be noticed the fact that in case of men the employment rate has higher values.

5. Demographic transition and the effects on labor market and public pension system

The structure of labor market (Figure no.3) in all five CEE countries presents between 2000 and 2008 an increase of the share of employed population, compared with total population of the country, with 12.9% in Hungary, 12.4% in Poland, 10.8% in Slovakia and 9.8% in Czech Republic; in Romania, this indicator recording a rise of only 1.8%. According to gender, employed population is formed in proportion of 55% of males, and according to educational level can be noticed the decrease of the employees with primary and secondary studies graduated, and an increase of the employees with tertiary education completed in all five CEE countries.

Employed population and the structure of labor market are very important factors that lead the functioning of pension systems. In case of countries included in this study, the protection of elderly is made through public pension systems based on the contributory

principle, social solidarity and redistribution between generations. As a result, the characteristics of employed population will be reflected in public pension system, because the employed population is providing, by the social contribution paid to Social Insurance Budget, the incomes needed for offering the financial support to the beneficiaries.

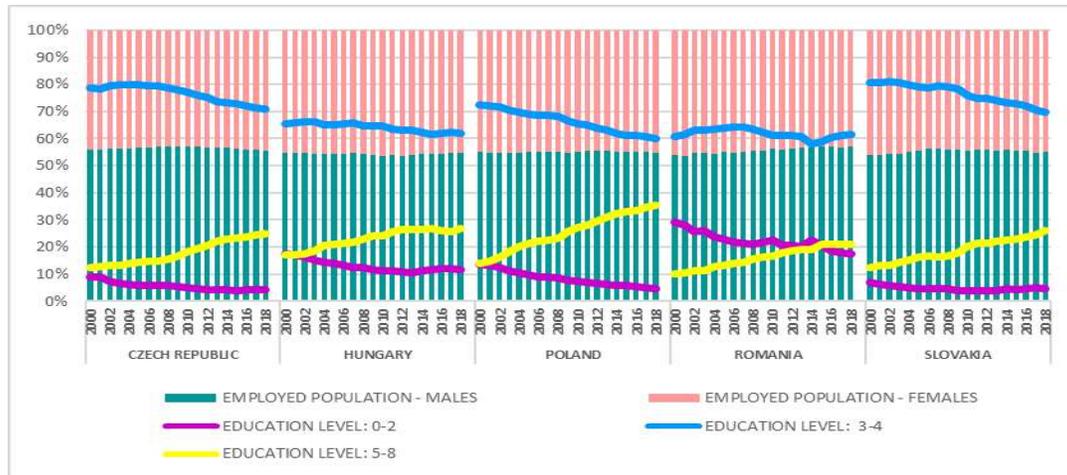


Figure no. 3. Structure of labor market in CEE countries between 2000 and 2018

Source: Own processing based on data published by Eurostat

The average annual earnings owned by employees in CEE countries included in our study increased between 2008 and 2018, the highest incomes being obtained by the employees from Czech Republic, Poland and Hungary, and the lowest ones by the employees from Romania. The minimum annual income recorded the greatest increase in Romania (+197%), followed by Slovakia (+79%), Hungary and Poland (+43%), Czech Republic having an increase of minimum annual income by only 40% in the last 11 years. Also, the average annual gross income got bigger, the largest growth being accomplished by Romania (+71%), meanwhile in other countries the increase was included between 32% and 40%. However, in monetary expression the incomes obtained by the Romanian employees are the lowest, compared with the employees of other four CEE countries.

The incomes obtained by the population have a major impact on public pension systems due to the fact that the contributions payed to Social Insurances Budget are established in accordance to the proportional scheme with the contributory capacity, respectively with the level of income obtained. Also, the contribution regarding the voluntary pension funds is determined by the level of incomes and the capacity of saving.

Taxes and social contributions payed by employees present different evolutions according to residence state (Figure no.4). The taxation of incomes recorded between 2008 and 2018 is highlighted by an increase of 67% in Czech Republic, 53% in Slovakia and 35% in Poland. In Hungary the taxation of incomes had a diminishing trend until 2013, afterwards it rises up to the level of 2008. In Romania, until 2017 it was registered a progressive growth of the taxation of incomes, following that in 2018 its value to be reduced a 10% of gross income. As regard the social contributions, these increased in all five CEE countries. Decision to move the social contributions to employee beginning with 2018 led to a twice more contributions payed by Romanian employees and a growth

with 229% of them, compared with 2008. In Hungary, social contributions paid by employees recorded an increase with 52%, in Slovakia with 38%, in Poland with 32% and in Czech Republic with 20%. Compared with average gross income, the taxation of incomes and social contributions led to an increased of tax burden with 9.51% in Romania, meanwhile in Slovakia and in Czech Republic the tax burden rose with 1% and in Hungary decreased with 4.8% in the last 11 years. Tax burden is a factor connected with tax evasion and tax compliance, Opreț et. al. (2017) showing that a higher tax burden in Romania led to a reduced level of tax compliance.

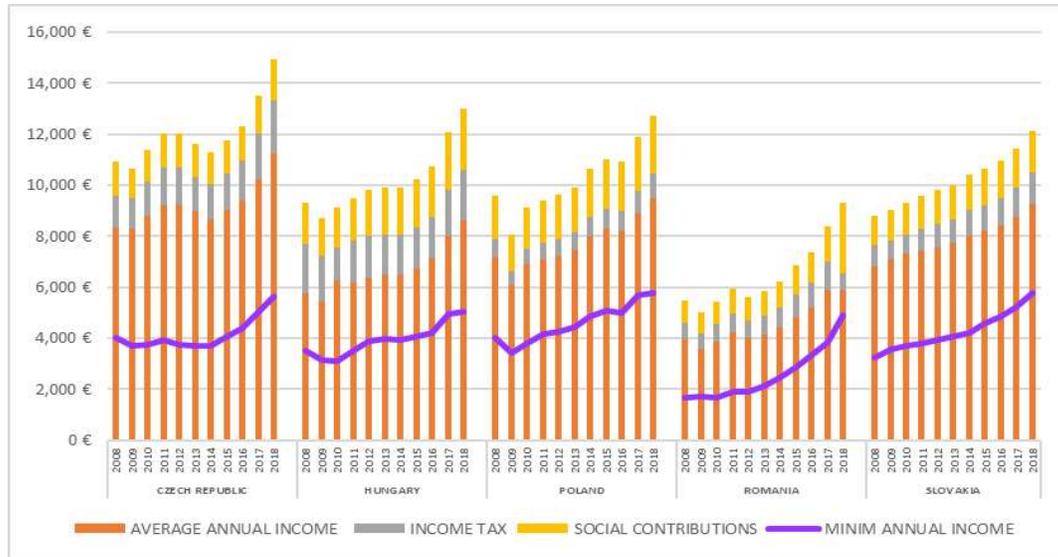


Figure no. 4. Minim annual income, average annual income, taxes and social contributions in CEE countries between 2008 and 2018

Source: Own processing based on data published by Eurostat

The time period of working life of population in all five CEE countries increased between 2000 and 2018, both for men and women reaching values over 36 years in case of men and over 30 years in case of women (Figure no.5). In 2018, population from Czech Republic have the higher duration of working life, respectively 39.2 years in case of men and 33.2 years in case of women. Compared with 2000, the greatest increase was recorded in Hungary, where mean duration of working life of men grew up with 6.6 years and in case of women with 6.4 years, in other countries the duration of working life having an average increase of 2.4 years. In Romania it can be noticed the decrease of mean duration of working life between 2000 and 2018, the indicator lowering with 4 years in case of women and with 1.1 years in case of men. Implications of this indicator to pension systems reveal in the contributory periods, which together with age, represent an eligibility criteria to access the provisions of public pension systems.

Productivity of labor market and economic development is influenced by the health status of population (Schultz, 1961). Measures of prevention, diagnosis and treatment, as well as the politics to reduce malnutrition and poverty led to an increased life quality and life expectancy. In CEE countries, life expectancy at birth get higher in last 11 years, having values over 70 years (Figure no.6). It can be noted that in case of women the life

expectancy is greater with 6-8 years compared with life expectancy of men. The explication is given by the hormonal protection of women and by the attention of them to personal care, alimentation, periodical medical examinations, methods of prevention and prescribed treatments.

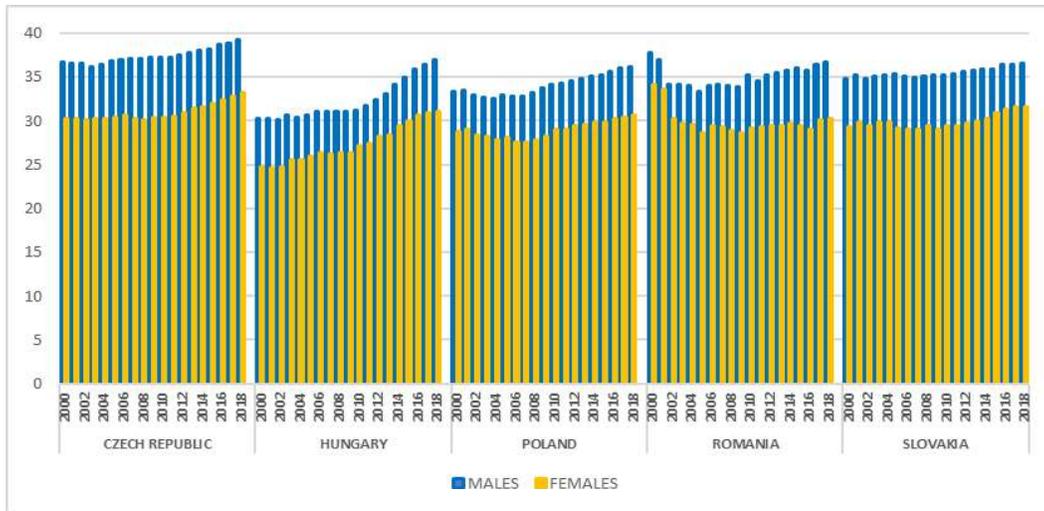


Figure no. 5. Duration of working life in CEE countries between 2000 and 2018

Source: Own processing based on data published by Eurostat

Life expectancy decreases if it is considered the healthy life years at values included between 53 and 65 years. Between 2007 and 2017 healthy life years diminished in Romania by 4.2 years in case of women and by 1.3 years in case of men, and in Czech Republic and Slovakia the indicator reduced with 0.5 and 0.9 years, meanwhile in Hungary and Poland the values of it increased in case of men with 4.5 years in Hungary and 3 years in Poland, respectively in case of women with 3 years in Hungary and 2 years in Poland. Therefore, the perception of the population of the five CEE countries regarding the own health show that 50% to 80% of employed population consider having a good health, a share of 15% to 30% believe having a very good health and 10% to 23% of employed population think to have a satisfying health.

Life expectancy is a very important indicator in characterizing labor market by approximation of average years of professional activities carried by a person. From the perspective of social protection systems, this period represents the contributory period which ensure the funds needed to provide the benefits. Also, life expectancy allows the probability of estimating the average period for which the benefits must be provided.

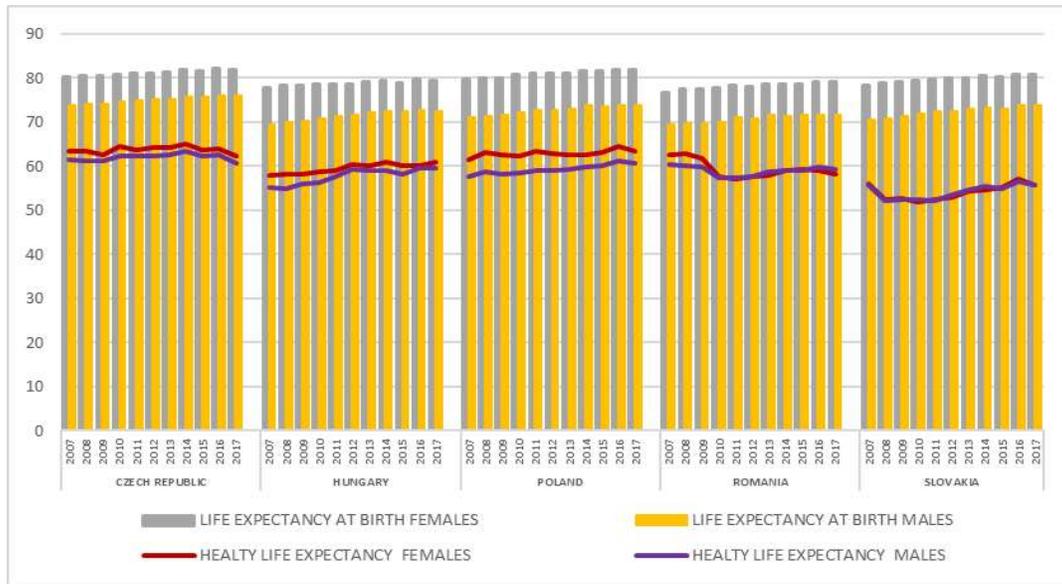


Figure no. 6. Life expectancy in CEE countries between 2007 and 2017

Source: Own processing based on data published by Eurostat

An important aspect for labor market and social protection systems is the accidents at work. If for labor market, accidents at work and leaves for temporary incapacity of work materialize in low productivity, for the employees these represent a risk of invalidity or death, and also a financial risk. In CEE countries in the last years can be noticed the predisposition of reduction of accidents at work with a high degree of severity, the leaves for temporary incapacity of work being mainly given for a period of 1-3 months. Accidents that led to invalidity or fatal accidents decreased between 2008 and 2017, but it owns a significant share in Romania and Slovakia, and in Hungary the proportion of accidents that led to invalidity or fatal accidents increased. These causes enter under the auspices of pension systems, which have the role to ensure financial protection of the population, by providing benefits as invalidity and survivors pensions, if the surviving spouse or children fulfill the eligibility criteria. In the last 10 years, the number of beneficiaries of invalidity or survivors pensions remain constant in Czech Republic and Slovakia, in other CEE countries the number of them getting smaller.

6. Conclusions

The reason to organize social protection systems and pension systems is the right of population to social protection, in a context of income inequality, aspect that will lead to poverty.

Demographic modifications manifested in the latest decades in Europe draw attention to social protection systems. The decreases registered in the share of young population active on labor market reveal the problem of attracting budgetary resources needed by public pension systems. These are facing a growing number of beneficiaries and increased expenditures with social provisions.

The direct linkage between population structure and public pension systems represent, especially for Romania a threat in the context of demographic transition. We

consider that reformation should be adjusted to current socio-economic condition, identifying solution to stimulate birth rate, decrease the “exodus” of young people and encourage economic activities. Also, it is necessary to ensure the access to labor market and facilitate access for those persons having an older age or a reduced degree of physical disability that allows them to carry out certain professional activities, maintain the development of entrepreneurial and business environment, create jobs suitable for the professional training of the population. Last but not least, pension system reformation should take into account the influences of tax system, educational system and the range of financial market, in order to promote national economic growth.

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