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## **Ageing of population and changes in the standard of living. A comparative study of the processes in selected Western and Eastern European Countries**

### **(1) The aim of the work**

The main objective of the paper is:

1. to assess the changes in the level of standard of living in the context of the ageing of population in the Eastern and Western Europe,
2. to determine the benchmark profile of activity in the labour market for Eastern European Countries,
3. to evaluate – for each of the country – the pace from the benchmark profile and the period needed for reaching it.

### **(2) Method and data**

In order to assess the changes in the standard of living in the European countries we focus on the economy's consumption opportunities. Thus, we use the definition of the standard of living which refers to the quality and quantity of goods and services available to people. This availability in the market economy is considered as financial resources, which could be used to fulfill the consumption needs of population. In other words, the standard of living is a level of material comfort of population. Demographic changes could affect the standard of living because they change the relative sizes of the self-supporting and dependent populations. The first group generates incomes which are consumed by whole population. Thus, an increase of dependent population together with a decrease of working population, *ceteris paribus*, results in the lower consumption opportunities per capita. In this paper we use the support ratio and its modifications proposed by Cutler (1990) and Prskawetz and Fent (2004) which can assess the consequences of demographic shifts on consumption opportunities in the populations under consideration. We prepare two main scenarios of changes in the labour market, which could affect the consumption opportunities of population. Scenario 1 is based on assumptions that labour variables and earnings are stable at the level from the year 2005. Scenario 2 assumes that activity profiles by sex and age of the countries shift to the benchmark profile until 2015. We choose Finland profiles because this country has one of the highest economic activity of society in Europe. The shift appears only if a particular activity level of the country is lower than in the benchmark. In this study we base on the population projections prepared by experts from the UN. Data about economically active population, employment, and earnings come from: International Labor Organization (ILO), Eurostat, and national statistics offices.

### **(3) Some results for some Eastern European Countries**

- **Changes of self-supporting and dependent populations in Poland, Slovakia, Ukraine**

The standard of living, defined by support ratio, depends on the relation between working population and consumers group. It is stated that the total dependency ratio will decrease until 2010 – 2015 but after that it will rise. It will reach the level close to 80% by 2050. This tendency will be caused by a gradually decline of child dependency ratio and a sharp increase

of old-age dependency ratio. There are two negative trends in changes of the labour force in Poland, Slovakia and Ukraine in the perspective of next fifty years, namely: a sharp shrinkage of the population at age 15-64, which will start about 2015 and the ageing of population aged 15-64 in investigated countries.

- **Changes in the level of standard of living in Poland, Slovakia and Ukraine**

As an example we show only the results for scenario 2. The benchmark definition of support ratio  $S$  relates the effective labor force to the effective number of consumers. The most common way of counting this ratio is relation between working population - "potential producers" (age 20-64) and total population - "consumers". The formula (1) is:

$$S = \frac{L1}{C1} = \frac{\sum_{x=20}^{64} N_x}{\sum_{x=0}^n N_x} \quad (1)$$

where:  $N_x$  - number of people at age  $x$ .

These assumptions are not fulfilled in the real world. Thus, it is necessary to make corrections to the above formula. Cutler at al. (1990) suggests using the weights of consumption instead of  $C1$ . The formula (2) of  $C2$  is counted in the following way:

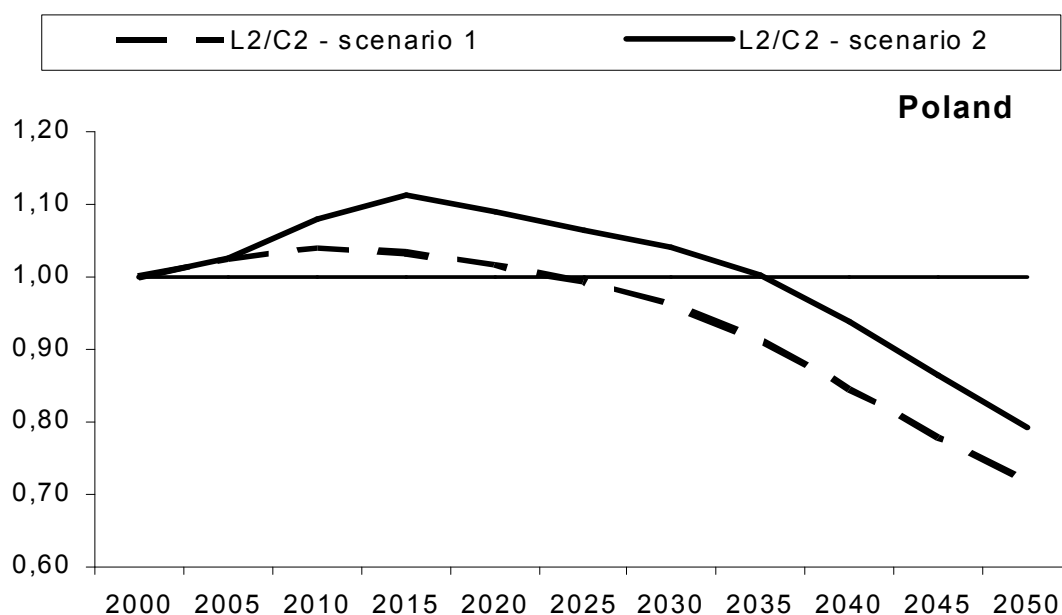
$$C2 = \sum_{x=0}^{x_g} w_x \cdot N_x, \quad w_x - \text{the weight for an individual at age } x, \quad (2)$$

The next correction of support ratio is connected with assumption that all people at age 20-64 are on the labor market. In fact it should be taken only people who are economically active, because they have the potential to generate incomes. Thus, we use activity rates by sex and age and apply them to the formula (3):

$$L2 = \sum_{x=15}^{64} [a_{f,x} \cdot N_{f,x} + a_{m,x} \cdot N_{m,x}] \quad (3)$$

where:  $x$  – age,  $m$  – males,  $f$  – females,  $a$  - activity rate.

The results are presented on the figure 1. In order to achieve a better comparison, we add an appropriate graph from the scenario1.



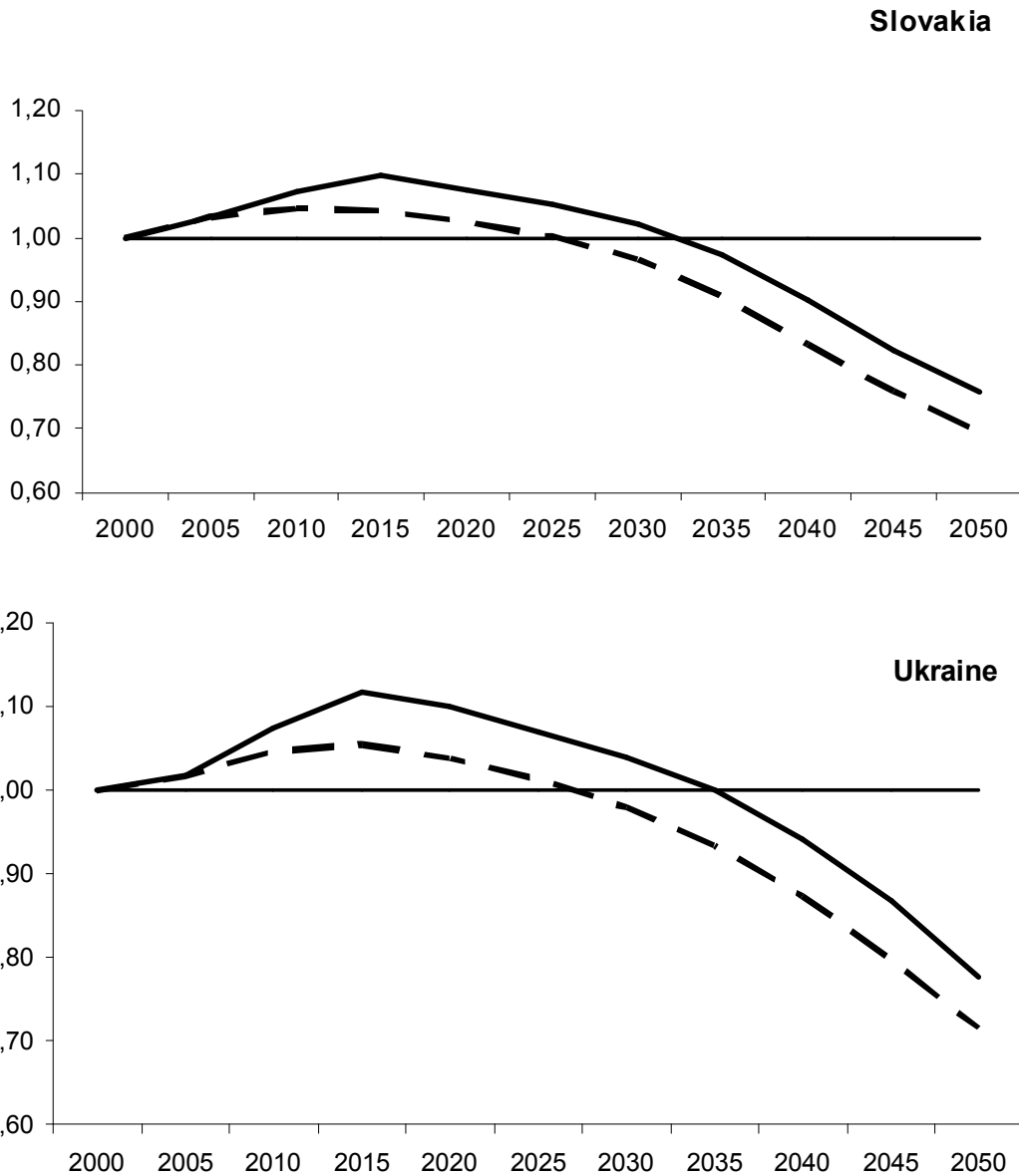


Fig.1 Changes in the level of standard of living in Poland, Slovakia and Ukraine (2000= 100%). Scenario 2 -Weighted consumption – C2  
 Source: own calculations.

We can expect the increase of support ratio in the first period and its decrease in the next period. This reflects the fact of an increasing old age dependency and using the highest weight of consumption for older people. We note that the standard of living relative to the year 2000 may be lower even already in 2025. One of the ways of counteracting the negative changes in the level of standard of living is to increase the activity level in the labor market. The scenario 2 illustrates this case. The older women have higher activity ratio than in the scenario 1. As figure 1 shows, an increase of professional activity may weaken the decrease of standard of living even by 10% and delay its occurrence about 15 years

#### **(4) Final results**

As final results for the considered set of the countries are expected:

1. evaluation of the domestic potential size and structure of labour resources,
2. appraisal of the similarities and dissimilarities in labour market mobility,
3. demonstration of the distance between Western and Eastern European Countries,
4. assessment of the potential of the elderly in the context of workforce,
5. evaluation of socio – economic consequences of population ageing in the short and in the long term,
6. indications for demographic, social and economic policy.