



# RETIREMENT DECISIONS AS A FUNCTION OF SOCIO-ECONOMIC FACTORS IN CENTRAL AND EASTERN EUROPEAN COUNTRIES

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### **ENEPRI Research Report No. 52/March 2008**

#### Anna Ruzik<sup>\*</sup>

#### **Abstract**

The aim of this report is to analyse the mechanisms influencing the labour supply of older workers in the Central and Eastern European (CEE) countries that transitioned from centrally planned to market economies in the early 1990s. Despite similar histories and economic reforms at the beginning of the 21<sup>st</sup> century, the CEE countries have different outcomes for the employment rates of older workers.

This report presents general trends and then studies the labour force participation dynamics of older workers in a selected group of CEE countries. The analysis uses longitudinal data from the available 2003 and 2004 waves of labour force surveys.

It turns out that older workers react similarly to certain economic incentives for retirement offered by the social security systems in the countries studied. Higher education increases the chances of (better) work and thus enables individuals to work longer. In addition, jobs in the service sector provide opportunities for later retirement. Yet there are differences among the countries in the region, some of which can be explained by labour market conditions and institutions, along with other factors not related to economic conditions.

Keywords: Retirement, older workers, labour market, ageing of societies, CEECs

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#### **Anna Ruzik**

#### 1. Introduction

Early retirement from the labour force has become popular for a large share of workers in developed countries. The diminishing employment ratio at older ages – combined with the ageing of societies – causes problems for public finances and additional fiscal burdens for the working population. The early cessation of professional activity also means a poorer use of human capital. So the implementation of policies to stop early outflows from the labour force has become a widely debated objective since the 1990s (e.g. OECD, 2000). Yet, to develop proper policies and expectations about future labour-supply decisions, the driving forces of early retirement need to be determined.

The aim of this research is to analyse the mechanisms influencing the labour supply of older workers, specifically in those member states of the European Union that underwent economic transition from centrally planned to market economies in the 1990s. The study seeks to identify the job and personal characteristics that influence retirement decisions (enabling explanations to be drawn for the differences in the employment rates of older workers).

The descriptive part of the report focuses on the analysis of eight member states of Central and Eastern Europe (CEE) (the EU-8, comprising the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia). The empirical part of the study is based on seven countries (without the Czech Republic), owing to data availability.

All of the countries have a similar political and economic history, having experienced comparable 'full employment' in the socialist era and having joined the EU in May 2004. Looking at demographic phenomena, all eight countries are undergoing accelerated changes that are described in the literature as a second demographic transition (Van de Kaa, 1987), leading to an ageing of the population and a rapid ageing of the labour force.

Still, when comparing average, effective retirement ages across the EU, retirement ages in Estonia and Lithuania are among the highest, while in Hungary the age is close to average and in Poland and Slovakia retirement ages are among the lowest. Such differences pose the interesting research question of whether there are any common variables determining the timing of retirement in the countries in focus.

The literature allows a division of factors influencing the probability of leaving the labour force at an older age into economic and non-economic ones. Economic factors mainly include those connected with income from labour versus the level of transfers available after withdrawal from the labour market (see e.g. Aaron & Burtless, 1984; Borsch-Supan, 1992; Gruber & Wise, 1999). Non-economic factors influencing labour supply are primarily the health status (Currie & Madrian, 1999) and the social and cultural characteristics of a person, including marital status and the labour market situation of a spouse (Bazzoli, 1985; Blau, 1997).

The report proceeds as follows. First, stylised facts are presented on the labour market activity of older persons in the EU-8, showing the differences in employment rates and the effective ages of exit from the labour market. Then, the report discusses the data and variables used in econometric analysis. The main empirical work focuses on the specification and estimation of econometric models to identify which characteristics affect the probability of retiring at an older age. The last section of the report presents conclusions and considers steps that could influence the development of retirement behaviour of older persons in future.

# 2. Economic development and activity of older persons in eight CEE countries – Stylised facts

In the centrally planned economy, unemployment did not exist in official statistics; one of the main principles of the former political system was that everyone who wanted to work could obtain a job. It was assumed that demand for labour was at least equal to supply. In reality, there was a shortage of qualified labour and hidden unemployment, e.g. in Poland, hidden unemployment in the late 1980s was estimated to be as high as 25% of total employment (Rutkowski, 1990).

At the outset of economic transformation, employment, real wages and participation rates declined, unemployment rose and GDP dropped. Reductions of over-employment in restructured public companies were the main source of registered unemployment (Bruno, 1997). These unfavourable trends were reversed by the mid-1990s.

Since then, the EU-8 countries have experienced years of recovery and downturns but the political transformation and the first stage of economic transition have been completed (see Table 1).

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Table 1. Real GDP	' changes in	1990-/1111	l norcontago	change to	nrevious vear
Tubic I. Real ODI	CHUILEUS III	1//0 2003	perceniage	change to	previous year,

	Czech							
Year	Republic	Estonia	Latvia	Lithuania	Hungary	Poland	Slovenia	Slovakia
1996	4.0	4.4	3.9	5.1	1.3	6.2	3.7	8.0
1997	-0.7	11.1	8.4	8.5	4.6	7.1	4.8	5.7
1998	-0.8	4.4	4.7	7.5	4.9	5.0	3.9	3.7
1999	1.3	0.3	3.3	-1.5	4.2	4.5	5.4	0.3
2000	3.6	10.8	6.9	4.1	8.1	4.2	4.1	0.7
2001	2.5	7.7	8.0	6.6	4.1	1.1	2.7	3.2
2002	1.9	8.0	6.5	6.9	4.3	1.4	3.5	4.1
2003	3.6	7.1	7.2	10.3	4.1	3.8	2.7	4.2
2004	4.2	8.1	8.6	7.3	4.9	5.3	4.4	5.4
2005	6.1	10.5	10.2	7.6	4.2	3.2	4.0	6.0
2006	5.3	8.9	8.5	6.5	4.6	4.5	4.3	6.1

Source: Eurostat (retrieved from <a href="http://epp.eurostat.cec.eu.int/">http://epp.eurostat.cec.eu.int/</a>).

Three small Baltic States – Lithuania, Latvia and Estonia – slowly recovered from the 1998 Russian financial crisis and strengthened ties with the West. Slovakia made important progress in macroeconomic stabilisation and structural reform in 2001–04, which resulted in healthy economic growth exceeding expectations in the period 2001–05.

Poland successfully carried out economic liberalisation throughout the 1990s, but much remains to be done: problems include challenges in some industrial sectors, the high unemployment rate and an agricultural sector with surplus labour, inefficient small farms and a lack of investment.

With its small transition economy and population of approximately 2 million, Slovenia is demonstrating economic success and stability. Despite the fact that privatisation is not yet completed, taxes are relatively high. In addition, the labour market is often seen as inflexible.

Part of the employment reduction of older workers stems from their absorption by the social security system, which has been altered to ease the social burden of unemployment, and thus a decrease in the overall employment rates is even more visible for older cohorts. In many countries, policies at the beginning of the transformation period resulted in a low retirement age and the availability of numerous income-replacement benefits – including early retirement or disability benefits – for those who lost their jobs or were at risk of such. As it is very difficult to persuade individuals to reverse retirement and come back into the labour market, the policies of the early 1990s led to a high share of pensioners.

In Hungary, the low employment level across the whole economy is accompanied by a low level of unemployment, which means a high degree of inactivity. That is especially visible for older persons, among whom only 30% work. A similar pattern can be observed in Slovenia. On the other hand, in Slovakia a low employment rate is accompanied by a high – although decreasing – unemployment rate (Figure 1).

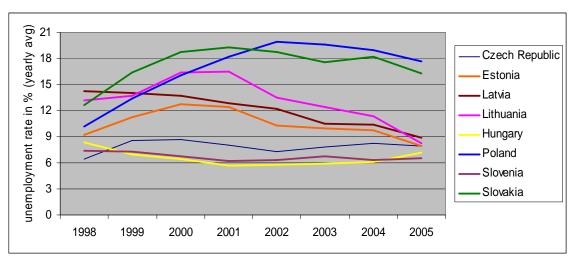


Figure 1. Standardised unemployment rates, 1998–2005

Source: Eurostat (retrieved from http://epp.eurostat.cec.eu.int/).

Whereas in recent years, the employment rate of older persons in Hungary, Slovakia and Slovenia has been increasing, Poland has not yet experienced such a reversal of the trend (Figure 2), despite the fact that the high overall unemployment rate in this country has begun to decrease very recently. The Czech Republic has average employment rates in the EU-8 and low unemployment rates.

In Estonia, Latvia and Lithuania, around 50% of the age group 55-64 was working in 2005 – more than the EU-25 average. The employment rate of the older population is higher in rural areas than in cities, so those aged 60 and over often work in low-productivity agriculture in both Lithuania and Poland.

Other differences appear in the employment structure by sector of the economy. The share of those working in services, industry and agriculture (including hunting, forestry and fishing) in 2004 was very similar in Poland, Lithuania and Latvia (respectively reaching 56-60% in services, 25-28% in industry and 15-16% in agriculture). The Hungarian labour market relies more on jobs in services (62% of total employment) than in industry (33%) and much less in agriculture (5%). The labour forces in Slovakia, Slovenia and the Czech Republic are employed more in industry and services than in the agricultural sector.

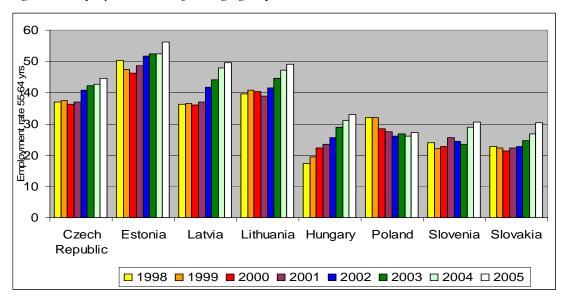


Figure 2. Employment rates of the age group 55-64, 1998-2005

Source: Eurostat (retrieved from http://epp.eurostat.cec.eu.int/).

In the second half of the 1990s, policies to stop early outflows from the labour force became more popular and resulted in the adoption of different measures. One of the long-term policies has been the diversification of mandatory pension schemes, by diminishing the pay-as-you-go (PAYG) component and creating an obligatory funded module with contributions invested in the financial markets through pension funds (with the exception of the Czech Republic and Slovenia, where a funded pillar is only obligatory for certain professions). Poland and Latvia have additionally changed their mandatory public PAYG schemes into defined-contribution ones. As new pension rules will cover future retirees, some of the possibilities for early retirement for upcoming pensioners have been abandoned in all three countries with different transition periods. In addition, the standard retirement age has risen in Lithuania and Hungary (see European Commission, 2006).

Figure 3 shows the outcomes of different policies and characteristics of the European labour markets for the employment rate and age of exit of older workers from the labour market in 2004.

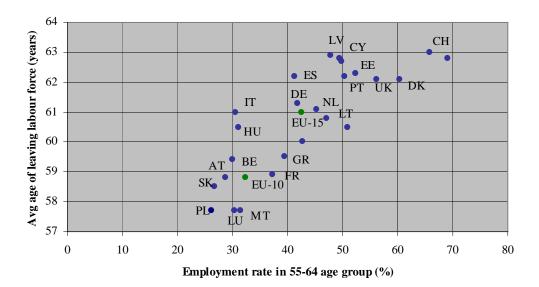


Figure 3. Labour market situation of older workers in 2004

Source: Eurostat (retrieved from <a href="http://epp.eurostat.cec.eu.int/">http://epp.eurostat.cec.eu.int/</a>).

## 3. Empirical analysis of flows from activity to retirement in CEE countries

Retirement can be understood in many ways, such as a process of gradually decreasing the number of hours worked, a one-time decision to quit working or the moment of applying for an old-age pension. Different definitions of this important life-cycle event can be found, e.g. in Fabel (1994).

For further analysis here, retirement is defined as a decision to decrease labour supply to zero, i.e. to stop working. So, a retired person is someone who is *economically inactive*. By contrast, *economically active* individuals, as defined in labour force surveys, are

- working that is, doing any work for pay, profit or family gain during the reference week (also the self-employed) or having a contract job but not working temporarily owing to different reasons (illness, bad weather, strike, etc.); or
- unemployed that is, not working, but looking for a job and ready to take up a job within a week from the time of the survey.

In Eurostat's statistical analyses of the economic activity of older participants in the labour market, the 'border' age is usually set at 55 years. In many CEE countries, economic activity starts to decline earlier. Hence, this research encompasses the retirement behaviour of persons from the age of 50, to include outflows from the labour market from this age onwards. It is assumed that decisions on the labour supply of those younger than 50 are determined by various factors other than age.

For six countries, the probabilities of flows between labour market states have been calculated for different age groups, and separately for women and men. Tables 2 through 4 present the

probabilities of flows between three labour market states – conditional on labour market status in the first year – for all the countries together.

Table 2. Transition of persons aged 50-59 between 2003 and 2004 (%)

	LM state in 2003								
		Men		Women					
LM state in 2004	Employed	Unemployed	Inactive	Employed	Unemployed	Inactive			
Employed	96	3	1	97	2	2			
Unemployed	35	57	9	31	53	16			
Inactive	10	9	81	8	5	86			

Source: Author's calculations based on LFS data.

Table 3. Transition of persons aged 60-69 between 2003 and 2004 (%)

	LM state in 2003								
		Men		Women					
LM state in 2004	Employed	Unemployed	Inactive	Employed	Unemployed	Inactive			
Employed	92	0	8	91	0	8			
Unemployed	30	32	38	16	7	77			
Inactive	3	1	96	1	0	99			

Source: Author's calculations based on LFS data.

Table 4. Transition of persons aged 70-74 between 2003 and 2004 (%)

	LM state in 2003								
		Men		Women					
LM state in 2004	Employed	Unemployed	Inactive	Employed	Unemployed	Inactive			
Employed	83	0	17	87	0	13			
Unemployed	2	0	98	0	33	67			
Inactive	1	17	83	0	17	83			

Source: Author's calculations based on LFS data.

The empirical analysis described in the next section shows which demographic and social characteristics could explain retirement decisions in selected CEE countries.

#### 3.1 Data and explanatory variables

Again, the data used is the microdata from the national labour force surveys for the years 2003 and 2004, matched on a year-to-year basis. The focus is on a pooled dataset of persons aged 50-74 in the year of the first survey.

Although information is available about the year in which an inactive person retired, the details about his or her situation one year before retirement are unknown. The only individuals for whom details are available on numerous characteristics are those who were active in 2003 (the first year of observation). Choosing this segment of the population for analysis – only those who were active in the first year of observation – enables the use of information on the situation of

the individual one year before retirement, but disregards the timing of retirement of all those persons who were already inactive.

Entitlement to social security benefits is one of the determinants of the labour market behaviour of older workers and social security benefits have a strong influence on retirement timing (OECD, 2000; Gruber & Wise, 1999). Unfortunately, standard labour force survey data do not contain enough information for the exact calculation of individual entitlement (e.g. social insurance or contributory periods). Surveys also lack information on the health status of the respondent, another important determinant of retirement. So age has been used as a proxy to somewhat encompass both health status and potential entitlement to pension benefits through attainment of retirement age.

Education level marks substantial differences among individuals with regard to labour supply decisions, the level of human capital and prospects in the labour market, including the level of expected wage. Peracchi & Welch (1994) found that the factors that most sharply distinguish propensities towards early retirement are those usually associated with low education and low wages.

Because labour supply decisions are made within the household, marital status has additionally been included as an explanatory variable. Here, there are differences among labour force survey questionnaires. In some countries, cohabitation is recorded separately, while in others a cohabiting partner is recorded as single or in the same way as a married spouse.

Characteristics of the workplace and more generally the sector of employment are also determinants of retirement. In the formerly communist economies, those who were entitled to early retirement were mainly industrial workers and teachers. In some countries (e.g. Poland), the agricultural sector was composed of numerous small family farms and provided a work place until old age for all family members. Thus, the sector of current or former employment is another explanatory variable in further analysis.

#### 3.2 Models of the probability of retirement

Binomial logit models of transitions to retirement have been used for a joint dataset for all seven countries, to assess the influence of different variables described above on the probability of retiring in a one-year time interval between the years 2003 and 2004.

In a binomial logit model,

$$\ln \frac{AR}{AA} = x^{T} \beta$$

 $\frac{AR}{AA}$  is an odds ratio of those who moved from activity to retirement to those who stayed in activity and x is a vector composed of the following categorical variables:

- UNEMPL is a binary variable equal to 1 if an individual was unemployed in the first year of the survey, and 0 otherwise;
- AGE\_GR represents two age groups, those aged 50-59 in year 2003 [1] and those aged 60-75 [2], with the younger being the reference group;
- SECTOR refers to agriculture [1], industry [2] and services [3], with services being the reference group;
- MARITAL indicates marital status, with 1 for not married, i.e. single, widowed, separated or divorced, and 2 for married (the reference group);

- EDU is the level of education, including incomplete primary, primary and primary vocational [1], secondary [2] and tertiary (college or university) [3], with the highest level being chosen for the reference group; and
- COUNTRY represents dummy variables for separate countries.

Additionally, another variable has been defined to account for the possibly varying significance of education among the countries. Separate models have been analysed for men and women, to include disparities in the eligibility criteria for some social security benefits and the different labour supply elasticities of men and women. Details of the estimations can be found in the appendix.

#### 3.3 Results

For all the countries analysed, unemployment turned out to be one of the most important predictors, significantly increasing the probability of retirement for both men and women. This outcome suggests that labour demand influences the economic activity of older persons to an important extent and that a distinction between being unemployed and retired at older ages is not very meaningful.

The point at which the age requirement is fulfilled for receiving social security benefits along with health status (worsening with age) increase the odds of retirement. If individuals continue to work, they are more likely to retire within a year if they are older.

Employment in agriculture and industry increases the chances of retirement in comparison with employment in services at older ages (*ceteris paribus*).

The impact of marital status on an individual's retirement behaviour is either not a significant predictor of the likelihood of retirement or is only significant at a low level for women. Generally, married and non-married persons behaved similarly in 2004.

The lower the level of education, the higher is the likelihood a person will start retirement. Nevertheless, it should be recalled that the sample only includes persons aged 50-74 who were active (working or unemployed) in 2003, thus skipping over a huge share of the less well-educated, low-skilled former workforce already retired. One also has to remember that education gained in the past is not the same as that more recently acquired. As individuals in the sample were born in the 1940s or 1950s, their human capital was formed mainly in the previous system.

As shown based on the general macro data, there are differences in employment rates at older ages among the countries. The econometric analysis reveals that there is less chance that individuals will retire at age 50-75 in Estonia and Lithuania than in Poland. There is less likelihood that women will do so in Hungary and Latvia and a higher probability that men will do so in Hungary and Latvia than in Poland. There is a higher probability of retiring at this age in Slovakia and Slovenia for both men and women.

#### 4. Conclusions

The aim of this report has been to analyse variables influencing the labour supply and retirement of older persons in selected CEE countries.

It turns out that two factors, the level of education and employment in the service sector, can prolong activity in the labour market. So a combination of better education for future generations and changes in the sectoral distribution of labour in developed economies (from agriculture and industry towards services) could assist the successful implementation of policies

aimed at later retirement, which have recently been introduced in the countries studied (Table 5).

Table 5. Overview of recent pension system reforms

Country	Year of change	Details of the reform	Retirement age
CZ	2001	Change in benefit formula, Bonus-Malus system for early and deferred retirement	M 63 F 59 to 62
ES	2002	Three-pillar system introduced, with a compulsory funded pillar for persons entering the labour market from 2002 onwards	M 63 F 63 (from 2016)
HU	1998	Three-pillar system (reduced first pillar and an obligatory second pillar)	M 62 F 62 by 2009
LV	2001	Entire mandatory pension system based on individual accounts (NDC+FDC)	M 62 F 62 (from 2008)
LT	2004	Funded obligatory pillar introduced	M 62.5 F 60
PL	1999	Entire mandatory pension system based on individual accounts (NDC+FDC)	M 65 F 60
SK	2005	Three-pillar system introduced, second funded pillar compulsory for persons entering the labour market after the reform	M 60 F 53-57 62 from 2014
SI	2000	General social insurance reform, funded DC pillar obligatory only for certain professions	M 63 (from 2008) F 61 (from 2022)

*Note*: NDC refers to a notionally defined contribution; FDC refers to a funded defined contribution. *Source*: Author's compilation.

The problems associated with the low rates of activity and employment of older workers have been noticed and some reforms have been undertaken. The major ones include changes in the pension system, to establish a closer link between the contributions paid and the benefits received. These changes adjust the level of pension benefits to the retirement age chosen and will in future create more incentives for a longer working life.

The remaining differences between employment rates at age 50-75 among the countries can be attributed to variations in labour market conditions and social security institutions.

Finally, it should again be underlined that becoming unemployed at an older age is a strong factor increasing the probability of retirement, regardless of the overall situation in a country's labour market. Consequently – and particularly in times of high unemployment – it is especially difficult to implement successful policies to extend working life without a proper, active labour market policy focused on older participants in the labour market.

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## **Appendix**

Table A1. Results for estimated models for transitions to retirement between 2003 and 2004

	Women					Men			
<del>-</del>	Model 1 W Model 2 W		Model	1 M	Model	2 M			
	В	Sig.	В	Sig.	В	Sig.	В	Sig.	
Unempl	1.403	.000	1.422	.000	1.546	.000	1.562	.000	
Age group									
60-75 years	.978	.000	.915	.000	1.847	.000	1.833	.000	
Sector		.000		.000		.000		.000	
Agriculture	.309	.000	.389	.000	.299	.000	.322	.000	
Industry	.150	.000	.147	.000	.102	.009	.098	.012	
Marital status									
Not married	.053	.146	.034	.346	001	.976	006	.903	
Edu_gr		.000	_	_		.000	_	_	
Primary vocational and lower	.530	.000	_	_	.583	.000	_	-	
Secondary	.366	.000	_	_	.316	.000	_	_	
Country		.000	_	_		.000	_	_	
Estonia	829	.000	_	_	213	.071	_	_	
Hungary	230	.000	_	_	.600	.000	_	_	
Lithuania	931	.000	_	_	635	.000	_	_	
Latvia	157	.064	_	_	.474	.000	_	_	
Slovakia	.300	.000	_	_	.330	.000	_	_	
Slovenia	.929	.000	_	_	.888	.000	_	_	
Country * edu_gr	_	_		.000	_	_		.000	
Estonia by primary	_	_	561	.013	_	_	.075	.725	
Estonia by secondary	_	_	667	.000	_	_	507	.003	
Hungary by primary	_	_	.263	.000	_	_	.855	.000	
Hungary by secondary	_	_	281	.000	_	_	.359	.000	
Lithuania by primary	_	_	740	.000	_	_	346	.022	
Lithuania by secondary	_	_	772	.000	_	_	859	.000	
Latvia by primary	_	_	.003	.988	_	_	.490	.002	
Latvia by secondary	_	_	.071	.529	_	_	.432	.000	
Slovakia by primary	_	_	.450	.000	_	_	.290	.000	
Slovakia by secondary	_	_	.495	.000	_	_	.260	.008	
Slovenia by primary	_	_	1.491	.000	_	_	1.105	.000	
Slovenia by secondary	_	_	.465	.000	_	_	.481	.000	
Intercept	-2.581	.000	-2.362	.000	-3.663	.000	-3.222	.000	
-2 Log likelihood	25,367.	298	25,355.	080	25,446.	091	25,399	9.96	
Cox & Snell R-Square	.078	3	.079	)	.084		.08		
Nagelkerke R-Square	.139	)	.139	)	.169	)	.17	1	

Note: '-' indicates the variables that are not used as explanatory ones in the model.

Source: Author's calculations.

#### **About AIM (Adequacy & Sustainability of Old-Age Income Maintenance)**

he AIM project aims at providing a strengthened conceptual and scientific basis for assessing the capacity of European pension systems to deliver adequate old age income maintenance in a context of low fertility and steadily increasing life expectancy. The main focus is on the capacity of social security systems to contribute to preventing poverty among the old and elderly and more generally to enable persons to take all appropriate measures to ensure stable or "desired" distribution of income over the full life cycle. In addition it will explore and examine the capacity of pension systems to attain broad social objectives with respect to inter- and intra generational solidarity.

Furthermore it will examine the capacity of pension systems to allow workers to change job or to move temporarily out of the labour market and to adapt career patterns without losing vesting of pensions rights. The project will also address the specific challenges with respect to providing appropriate old age income for women.

A general objective of the research project is to clearly identify and analyse the potential trade-offs between certain social policy objectives and overall stability of public debt.

AIM is financed under the 6th EU Research Framework Programme. It started in May 2005 and includes partners from both the old and new EU member states.

#### **Participating institutes**

- Centre for European Policy Studies, CEPS, Belgium, coordinator
- Federal Planning Bureau, FPB, Belgium
- Deutsches Institut f
   ür Wirtschafsforschung (German Institute for Economic Research), DIW, Germany
- Elinkeinoelämän tutkimuslaitos, (Research Institute of the Finnish Economy), ETLA, Finland
- Fundación de Estudios de Economía Aplicada, FEDEA, Spain
- Social and Cultural Planning Office, SCP, Netherlands
- Instituto di Studi e Analisi Economica (Institute for Studies and Economic Analysis), ISAE, Italy
- National Institute for Economic and Social Research, NIESR, United Kingdom
- Centrum Analiz Spolleczno-Ekonomicznych (Center for Social and Economic Research), CASE, Poland
- Tarsadalomkutatasi Informatikai Egyesules (TARKI Social Research Informatics Centre), TARKI, Hungary
- Centre for Research on Pensions and Welfare Policies, CeRP, Italy
- Institute for Economic Research, IER, Slovak Republic
- Inštitut za ekonomska raziskovanja (Institute for economic research), IER, Slovenia