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7 Low employment among the 50+ population in Hungary: the role of incentives, health and cognitive capacities

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- ▶ Employment rate in Hungary among the 50+ population is among the lowest in Europe
 - ▶ Earnings in Hungary are very close to retirement income, creating incentives to retire early
 - ▶ Hungarians are in significantly worse health than the people in most other European countries
 - ▶ The employment gap between Hungary and Europe is largest among people with bad health and low skills
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The employment rate in Hungary has been very low over the past 20 years. And this is especially true for those people aged 55–64 years: while the corresponding OECD average employment rate is 54 per cent, in Hungary it is a mere 34 per cent (OECD 2011). In fact, Kátay and Nobilis (2009) argue that the low level of labour force participation among the 50+ population is one of the major reasons for the low level of aggregate labour force participation in Hungary.

In this paper we use the cross-sectional data of SHARE Wave 4 to try to discern the main reasons for the low employment level of the 50+ population in Hungary. Hungary, together with three other countries, joined in Wave 4. While SHARE is a panel dataset that follows individuals over time, the single wave of the Hungarian data provides a single cross-section. Our analysis is therefore a cross-sectional one and ignores information from previous waves for the other countries, too. We focus on people aged between 50 and 75; the number of observations in this age range is 2,500 in the Hungarian sub-sample and 45,000 in the entire sample.

Our paper is mainly descriptive: it points out interesting features in the data, rather than establishing causal relationships. We make use of questions on standard demographics, employment, income, health (including two tests) and cognitive functioning (working memory, vocabulary and numeracy) to investigate the potential causes of the low employment rate of older Hungarian people.

We show that incomes during retirement are very similar to earnings in the relevant age range in Hungary, while there are smaller or larger differences in most other European countries, including other Eastern-European countries. We also show that the level of education and cognitive capacity is lower than but not very far from the European average, while health status is among the

lowest in European comparison. The facts that available earnings and pensions create weak incentives for staying in employment in Hungary and the bad health status of Hungarians are well established in the literature (Cseres-Gergely 2007, Eris 2012), while the results on cognitive capacity are new. Our most important contribution is the joint analysis of health, cognitive capacity and employment. We show that bad health may account for over a quarter of the employment gap between Hungary and the European average. More importantly, our result suggests that the employment of healthy people with high cognitive capacity is as high in Hungary as in other European countries, while the employment of the less healthy and those with lower cognitive capacity lag behind the European average by a large margin. Our results suggest that active ageing and health and cognitive status are closely related, but that relationship varies from country to country, a phenomenon that calls for further research.

7.1 Differences in employment and retirement rates between Hungary and Europe

Whether a person is employed or not can be defined in various ways. SHARE allows quite a few definitions to be considered. In this analysis, we focus on individuals' self-assessment: respondents are asked what the best description of their labour market situation is, with answer categories of retired, employed or self-employed, unemployed, etc. (The results are very similar if we use alternative definitions of employment.)

Comparing the age- and gender-specific employment rates of Hungary to those of the other 15 SHARE countries considered, we find substantial shortfalls across the board. Let us take the group of men aged 50–54 as an illustrative example: while 80 per cent of them are employed in the other European countries, in Hungary only 59 per cent are. The discrepancy is greatest in the 60–64 age group (31 versus nine per cent).

A substantial part of the employment gap is due to retirement. While only four per cent of 50–54-year-old men are retired in the other European countries, some eleven per cent are in Hungary. The differences are spectacularly large in the 60–64 age group among both men and women. The fraction of retirees in that age group is slightly below 60 per cent among both men and women in the other European countries, whereas it is around 80 per cent in Hungary among men and over 80 per cent among women.

Early retirement is an important factor in the low employment rate in Hungary. In a European comparison, the average age of retirement is among the

lowest across all birth cohorts: while the average male retiree born in 1940 (and thus 71 years old at the time of the survey) retired at the age of 58 in Hungary, in the other countries the ages ranged from 57 to 64; the average female retiree born in 1940 retired at 53 in Hungary, but at between 52 and 65 in the other countries. The average age of retirement in the younger cohorts shows that Hungary's ranking has not changed in recent years: Hungarians continue to retire earlier than people in the other European countries.

7.2 Differences in earnings and retirement income are in line with the employment gap

As a next step, we look at the role of economic incentives for early retirement in Hungary. The theory of the option value of work and retirement compares the benefits of retirement to the costs of earnings forgone (the seminal paper is Stock and Wise 1990 or Börsch-Supan 2000). When making a decision about whether to retire at a certain age, individuals compare the income flow they would have in future if they stayed employed to the income flow they would receive if retired. Thus, the decision about when to retire is greatly affected by current and anticipated earnings, as well as by the rules governing retirement and the pension formula. The Hungarian pension system is characterised by low deductions in the case of early retirement and practically zero bonuses for working over the legal retirement age – a topic covered in detail by Cseres-Gergely (2007). Here we look at the levels of expected wages and pension benefits.

Unfortunately, we only have information on earnings for those who work and on pension income for those who do not. The first limitation is common across studies in the literature; the second is overcome in many studies by applying the pension formula to earnings histories, but such an exercise is beyond the scope of our analysis. Comparing the earnings of those who are employed to the retirement income of those who are retired is obviously imperfect for our purposes, but it can still provide useful information, especially in cross-country comparisons. Figure 7.1 shows the median earnings of those who are employed, together with the median income of those who are retired, for men, by age, for each country separately. All figures are normalised to median earnings in the corresponding country (and gender) between age 55 and 59. The corresponding figure for women is not shown here but it shows very similar patterns.

The figures reveal strong patterns: median earnings in Hungary are practically equal to median retirement income. The comparison of earnings to retirement income is mostly between non-overlapping ages, but neither earnings

nor retirement income seems to follow any age pattern. As a result, median retirement incomes in Hungary are a straight continuation of median earnings. These results suggest that Hungarian employees may have little incentive to stay employed in their 50s and 60s. This is not the case in most other countries: there is some (albeit often small) level shift in almost any other country and a negative age profile in median retirement incomes in some countries. (Median earnings exhibit a positive age profile in older ages in some countries, too, but that likely shows the effects of self-selection becoming stronger at older ages.)

It seems, therefore, that pure economic incentives may be in large part responsible for the low levels of labour force participation and employment in Hungary. However, many factors may shape those incentives. Besides the pension formula, attainable earnings are an equally important part of the picture. Pre-retirement earnings in Hungary seem very low by European comparison. In the remainder of the paper we look at factors that may be responsible for the low earnings of older Hungarians.

7.3 The potential role of education and cognitive capacity in explaining low employment rates in Hungary

We first look at education and cognitive capacity. The fraction of people with low and medium levels of education in Hungary is similar to their fraction in most other European countries in the relevant age group. At the same time, the fraction of Hungarians with high levels of education is substantially lower in the relevant age group than in most other European countries. These numbers indicate that the education distribution is relatively compressed in Hungary – as is the case with the other post-communist countries and the Scandinavian countries – but is not particularly low by comparison with the rest of Europe. The level of formal education is therefore unlikely to be a major factor behind the employment gap. But the same formal education may correspond to different content in different countries, and labour market experience and other factors may have led to additional differences to the actual skill composition of older workers in the different countries.

A major advantage of SHARE is that we can look at more than education: a battery of cognitive tests makes some skills directly comparable. Five simple cognitive tests are administered – on episodic memory (both short-term and longer-term), verbal fluency, numeracy and basic numerical skills. Figure 7.2 shows the average of each measure by gender and age. The figure shows the Hungarian

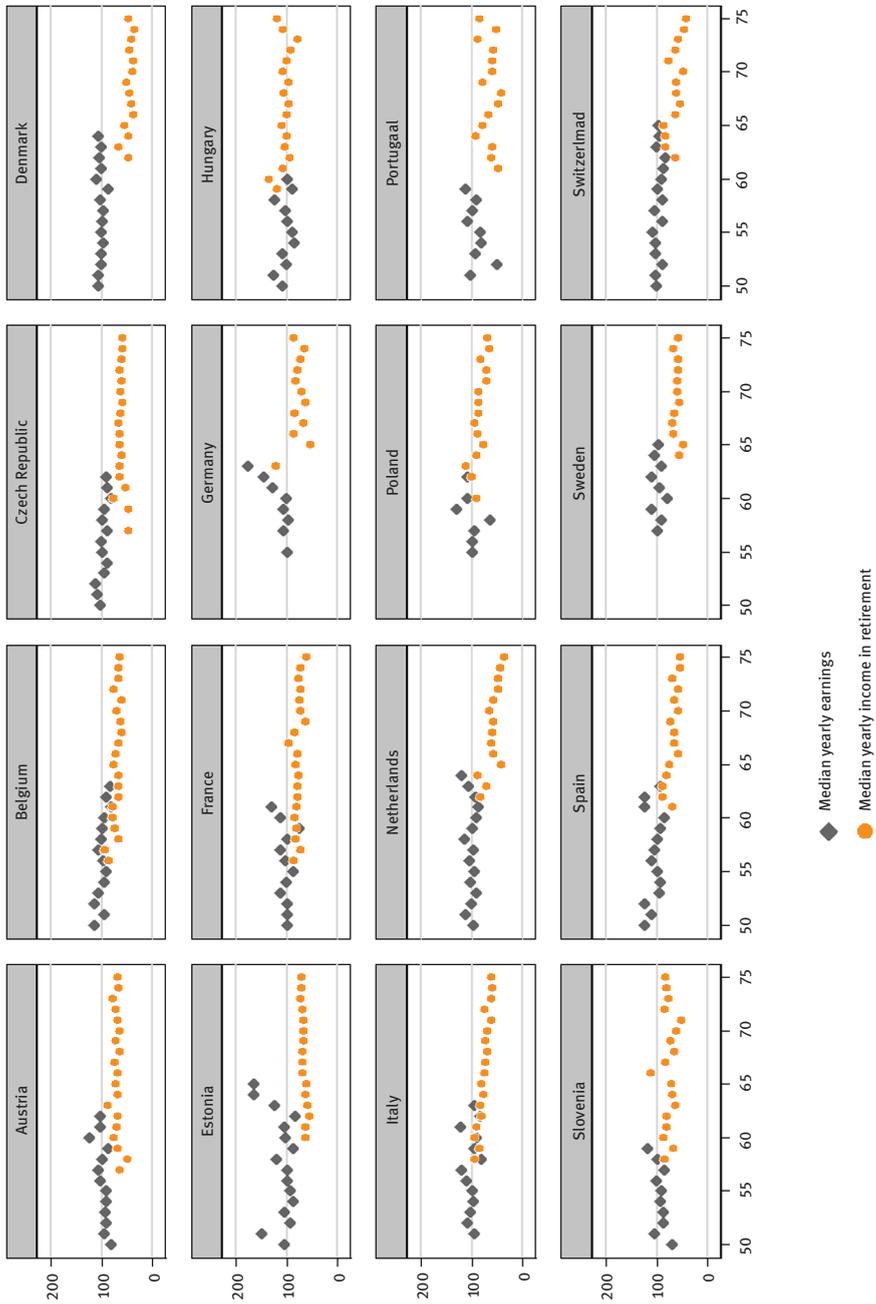


Figure 7.1: Median earnings and median pension benefits of men, by age, in the 16 countries of SHARE Wave 4

Notes: Number of observations = 16,312

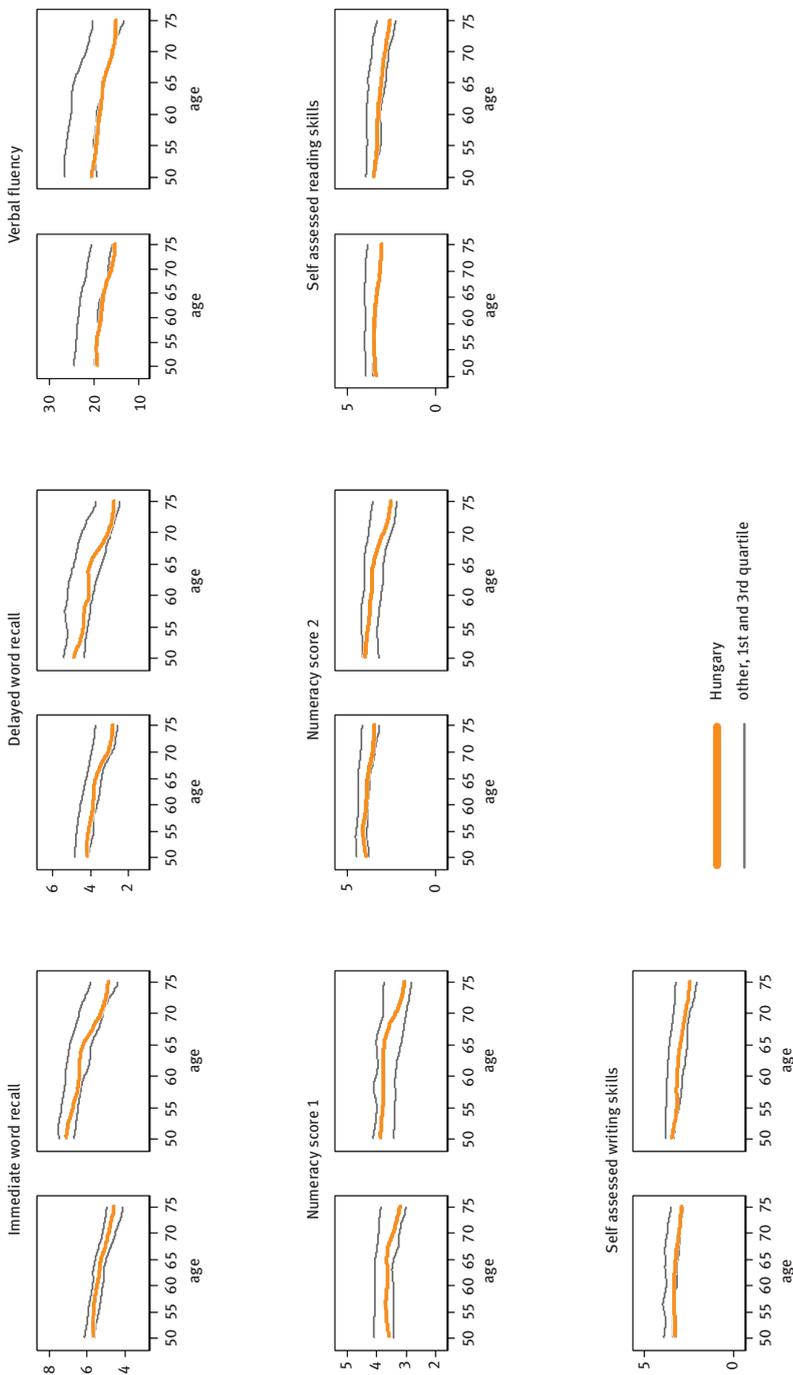
Source: SHARE Wave 4 release 1

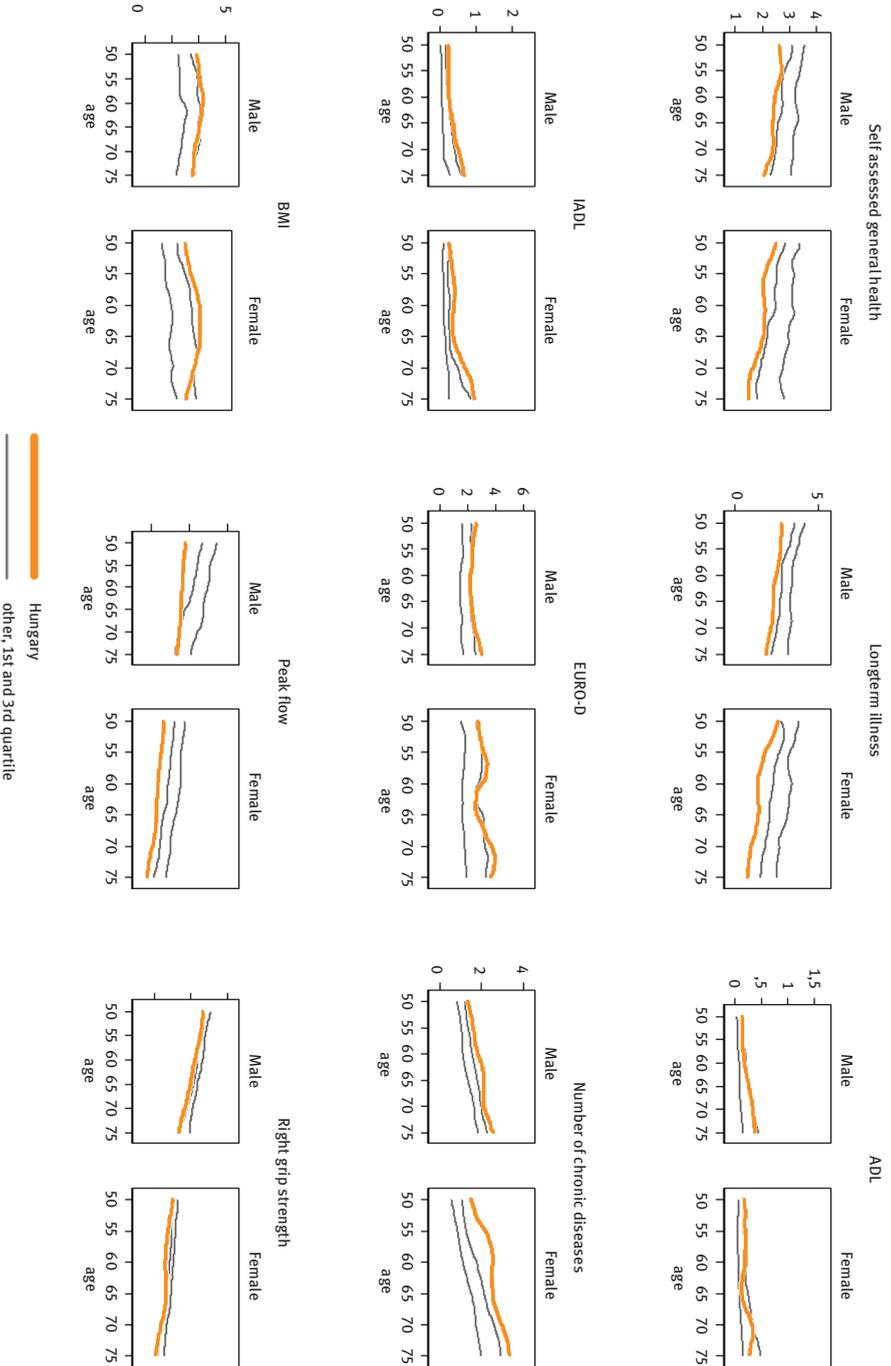
average for each measure together with the lower quartile and the upper quartile of the distribution of the corresponding average measures in the 15 other SHARE countries. The Hungarian average and the upper and lower quartiles are measured for each year of age and are presented as smoothed graphs. The scores achieved in the memory and numerical tests put 50–55-year-old Hungarians in the middle of the European distribution, while older Hungarians are more in the bottom half. On average, Hungarians perform relatively worse in terms of verbal fluency, and they, especially the men, rate their own cognitive capacity lower, too. These comparisons suggest that the skill composition of the older Hungarian population may be in part responsible for their relatively low levels of employment, but it is unlikely to be an important part.

7.4 The potential role of health in explaining low employment rates in Hungary

Another advantage of the SHARE data is information on the health status of the respondents. SHARE measures a wide range of indicators of physical health, including self-assessed health, whether respondents have ever been diagnosed with a chronic disease, whether they have ever had symptoms lasting at least six months, limitations in functioning and measurement of peak flow and grip strength. *Peak flow* is a measure of respiratory functioning and is a good predictor of related health problems. *Grip strength* is a strong predictor of functional limitations and disability (Rantanen et al. 1999). Besides these variables on physical health, SHARE collects data on respondents' height and weight, which allows their body mass index to be calculated. There is also an 11-item test for clinical depression (the Euro-D scale). Figure 7.3 shows the average of each measure by gender and age in Hungary in a European comparison. Similarly to Figure 7.2 with the cognitive measures, the Hungarian figures are compared with the lower quartile and the upper quartile of the distribution of the average measures in the other 15 countries, for each year of age (smoothed).

► **Figure 7.2:** Average cognitive measures in Hungary, by gender and age, together by the lower and upper quartile of the country averages in the other 15 countries of SHARE Wave 4
 Notes: Number of observations = 1,143/1,403; 19,314/23,865 (Male/Female, Hungary; Male/Female, other) – together: 45,752
 Source: SHARE Wave 4 release 1





Whichever of these measures we consider, the results suggest that Hungarians are in significantly worse health than the people in most other European countries. Hungarian women seem to be in especially bad shape. Perhaps the most striking results are revealed by the two objective health measures in the SHARE data – peak flow and grip strength. The measures are very different across gender and age, showing a clear decline by age and lower values for women. The Hungarian grip strength flow measures are in the bottom part of the cross-country distribution among both men and women, the Hungarian average peak flow measures are in the bottom part of the cross-country distribution among men and at the very bottom among women. When we break down the figures by employment status (not shown here), we see that the Hungarian health measures are worse in a European comparison among the non-employed than among the employed. Taken all these facts together, the bad health status of older Hungarians may be an important factor in explaining the low levels of employment in Hungary.

7.5 Can health and cognitive capacity explain the low employment rate in Hungary?

In this section we try to assess the potential role of cognitive skills and health in the low employment rate in Hungary in a more systematic way. An operational question that can shed some light on the more general question is the following: What would happen if Hungarians had conditions similar to the rest of Europe, as represented in SHARE Wave 4? We would need robust exogenous variation (or at least panel data) to hope to establish causal links, but the following simple descriptive analyses can still provide us with valuable information about the question in hand.

First we run simple linear regressions, where the dependent variable is the employment dummy, which is explained by country (reference: Germany), age (5-year age group dummies), education (International Standard Classification of Education – ISCED – categories), cognitive skills (measured by all the cognitive

◀ **Figure 7.3:** Average health measures in Hungary, by gender and age, together by the lower and upper quartile of the country averages in the other 15 countries of SHARE Wave 4

Notes: Number of observations = 1,143/1,403; 19,314/23,865 (Male/Female, Hungary; Male/Female, other) – together: 45,752

Source: SHARE Wave 4 release 1

variables) and health status (measured by all the health variables). We focus on the 50 to 69 years old population.

The most important results are summarised in Table 7.1. The coefficient of interest is the country dummy of Hungary, which expresses the employment gap relative to Germany, if the Hungarian 50–69 years old population had the same age, education, cognitive skills and health status on average. Comparison of the estimated coefficients in columns (1) and (4) reveals that part of the gap is explained by differences in health composition while education and cognitive skills appear not to make a difference. The greater part remains unexplained.

The regression assumes linearity in the score variables and poolability across countries, which might not be appropriate for the true relationships. We therefore also show the results of a simple non-parametric regression that allows for non-linearities and Hungary-specific slopes. First, we construct two synthetic variables: one for cognitive capacity and one for health. The first is the average of all cognitive scores, and the second is the principal component of the objective health measures. Then we create 5 categories from each synthetic variable, so that every respondent falls into one of the 25 bins defined by the 5×5 categories. Within each bin, we estimate the employment rate for Hungary and for the rest of Europe separately. Figure 7.4 shows the results for the male population aged 50–69. The figures for females show the same patterns.

The figures show that the relationship between health/cognitive skills and employment is stronger in Hungary than is the European average. Those with the good health and good cognition enjoy the same rate of employment in Hungary as elsewhere in Europe. However, as we move farther away from this category, so the employment probabilities deteriorate strongly and the employment gap increases relative to Europe. The increase in the gap is more substantial in health. This heterogeneity in the gaps suggests that the average slide in employment rates can be attributed to various factors, which affect different groups to a different extent.

Table 7.1: Cross-country differences in employment rates: raw differences and differences controlled for individual characteristics. OLS estimates of linear probability models with right-hand side variables of country, age, education, cognitive capacity and health. Age between 50 and 69.

	Men				Women			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Hungary	-0.17 [0.024]***	-0.17 [0.024]***	-0.12 [0.023]***	-0.13 [0.024]***	-0.21 [0.022]***	-0.19 [0.022]***	-0.14 [0.021]***	-0.15 [0.021]***
Country dummies (reference: Germany) ^a	YES							
Age dummies ^b	YES							
Education and cognitive variables ^c	YES							
Health variables ^d			YES	YES			YES	YES
Number of observations	16,489	16,489	16,470	16,470	20,444	20,444	20,421	20,421
R squared	0.35	0.37	0.40	0.41	0.33	0.35	0.37	0.38

Significance: ** = 5%; *** = 1%

Notes: Robust standard errors in brackets.

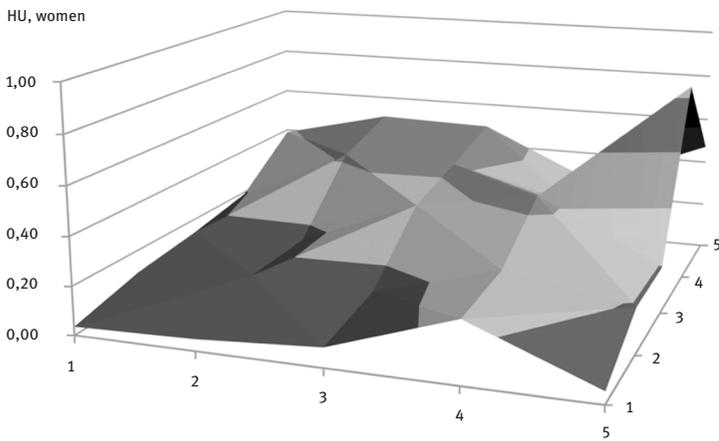
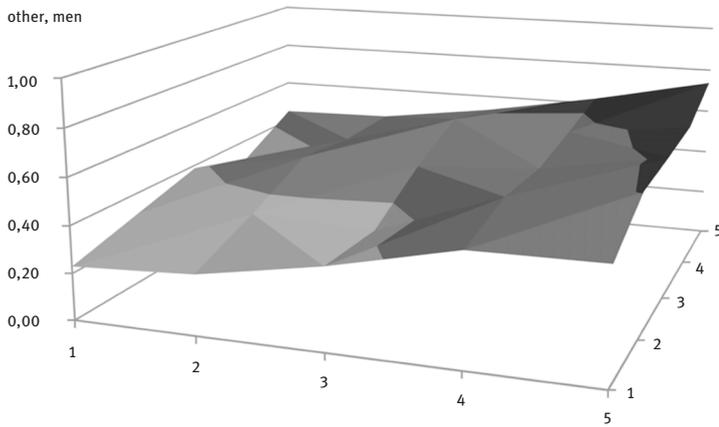
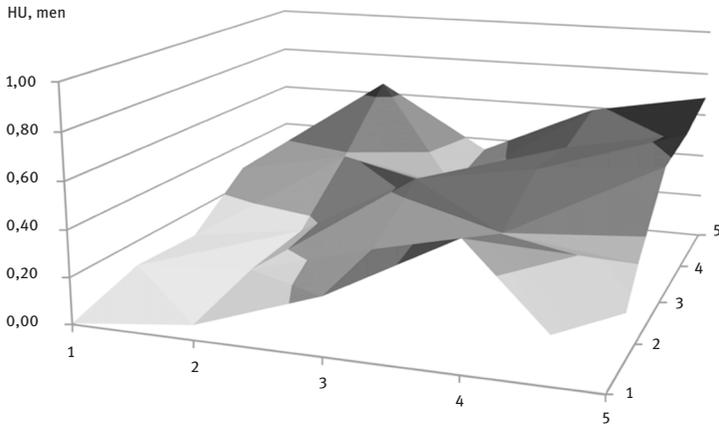
^a The variables are jointly significant at 1%.

^b Dummy variables for age 55–59, 60–64, 65–69 (reference category: 50–54). The variables are jointly significant at 1%.

^c Education entered as four categories based on ISCED classification. Standardised scores are entered for each cognitive measure. When entered, the variables are jointly significant at 1%.

^d Subjective health (five categories) and standardised scores for each health measure. When entered, the variables are jointly significant at 1%.

Source: Own calculations based on SHARE Wave 4 release 1



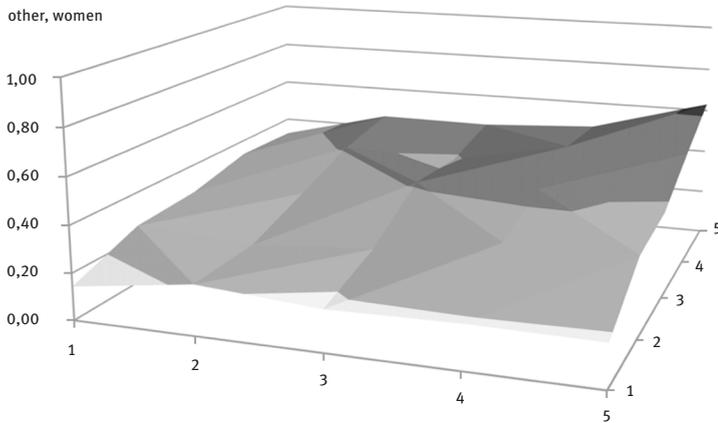


Figure 7.4: Employment rate by 5x5 categories of synthetic health and cognitive variables, 50–69-year-old men; Hungary and the other European countries in SHARE Wave 4
 Notes: x-axis: health; z-axis: cognitive capacity; y-axis: employment rate; HU, men (n=952); other, men (n=15,508); HU, women (n=1,164); other, women (n=19,248).
 Source: SHARE Wave 4 release 1

7.6 Research and policy should focus on the employment of less healthy and less skilled Hungarians of older age

In a mainly descriptive analysis, we have revealed some stylised facts featuring the employment of the population aged 50+ in Hungary. Although we have not established causal relationships, our results point out interesting associations that should be analysed in more detail in the future.

According to our results, the Hungarian pension system appears to provide strong incentives for early retirement, and these are probably strengthened by the low income attainable if an individual remains in the labour force. On average, levels of education and cognitive skills appear not to be responsible for the low employment rate among older Hungarians. The poor health status of the Hungarian population might play a more important role. Perhaps the most important key finding of the paper is that there are strong differences in the relationship between employment and cognitive skills and health across countries. The employment rate among older Hungarians with good cognitive and health status is very similar to the European level, but the employment rate among older Hungarians with lower cognitive skills and/or worse health status is substantially

lower. An important policy conclusion from these results is that the low employment rate for people with health problems impedes active ageing in Hungary.

To understand the causes of low employment rate in Hungary and suggest specific policy recommendations, research should uncover why health status of older Hungarians is so low in European comparison and why older Hungarians with lower cognitive and health status have substantially lower rates of employment than similar people in most other European countries. Subsequent waves of SHARE, with continued participation of Hungary, would help provide conclusive evidence on those questions by allowing for direct analysis of the transition to retirement and trajectories of cognitive and health status. Potential linkages with social security and health insurance records could add further evidence on the role of earnings histories and health care utilisation. The SHARE data opens very promising perspectives for understanding the low levels of old-age employment in Hungary (as well as some of the other European countries) and for evaluating the policy options.

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