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**Decreased Employment and Pensions –
The Case of Hungary¹**

The Hungarian old-age pension system is earnings related. Old-age pensions depend on *life-time employment* (the number of contributory years of service until retirement) and on *averaged earnings* of an annually expanding period beginning with 1988². Therefore labor market trends affect pensions crucially. The intention of this paper is to identify such effects on present and – particularly – expected future pensions. The approach is *longitudinal*, focused on *birth cohorts approaching pensionable age* in the period from 2005 to 2020. Estimates of past and future employment and earnings by sex and educational attainment are essential for estimating their labor market careers, hence expected entry pensions.

1. From full to low employment

Until 1990 the economically active, working age population was almost fully employed, with the level of employment being practically unaffected by economic fluctuations. The transition brought about a decline of nearly 20 percentage points of the *aggregate employment ratio* in 1990-93, which was followed by a partial recovery. A closer inspection, however, reveals that this recovery was almost fully accounted for by shifting weights, i.e. by improvements in the working population's educational attainment. While the aggregate ratio has somewhat increased, an *adjusted ratio* calculated as a weighted average of education-specific employment rates (using 1970 educational shares as weights) demonstrates that group-specific employment ratios of groups by sex and educational attainment have not improved significantly since 1993. (*Figure 1.*)

Although the dramatic drop in employment during transition affected all educational groups, education-specific employment ratios became highly differentiated. Among males aged 25.64 the probability of being employed was practically the same for various groups of educational attainment in 1980, the gaps widened somewhat in the late 1980's and by the mid-1990's the probability was by 20 percent higher for university graduates and by 30 percent lower for those with primary education than for high-school graduates. (*Figure 2.*)

Most affected were *males with primary education*³. Their cross-sectional age-employment profiles shifted downwards dramatically, from almost 100 percent employed/population ratio at age 30 to less than 60 percent and from close to 80 percent at age 60 to less than 30 percent. The younger a birth cohort the sooner it moved from high to low employment over the life-cycle, i.e. the longer its pension claims have been affected by decreasing employment. (*Figure 3.*)

Relative wages also changed significantly during transition. Compared to those with secondary school background, college wages doubled for females and tripled for males,

¹ The empirical background of this paper is derived from a detailed study by the author and Janos Köllő to be published in *Közgazdasági Szemle* (Economic Review) June 2007, in Hungarian. The author is alone responsible for pension policy conclusions in Part 5.

² Thereby the entire period of life-time earnings will be reached around 2030.

³ 8 years or less of elementary school, age 6-14.

while the disadvantage of primary school graduates doubled for both males and females from 1989 to 1998. A minor recovery of unskilled wages resulted from large increases in the minimum wage in 2001-2002, but this improvement proved to be transitory (*Figure 4*).

Increased relative earnings of university graduates, however, benefited almost exclusively the younger generation. *Age-wage profiles* changed significantly for those with higher education.. Technological changes during and after the transition depreciated the school-based skills and experience of older cohorts.⁴ The losses implied by skills obsolescence were enormous by any standard: the *male university graduates* born in 1944, for example, earned less by 60 per cent in 2001 than could have been expected on the basis of the 1989 cross-sectional age-wage profile. The changes at other educational levels were far less dramatic. (*Figure 5*.)

Considering the future, in lack of any reliable forecast for the Hungarian labor market an overtly (maybe even naively) optimistic scenario based on the National Development Plan for 2005-2015 has been applied. In disaggregating the planned employment figures, identical growth rates in all educational groups until 2010, and complete stability after that have been assumed. It has been hypothesized that relative wages stay stable except for university graduates where the recovery of returns to experience has been assumed. The contributory ratio (actual contributors over statistically observed employed) has also been kept at its 2005 level in all groups. These assumptions allowed to project the cumulated years of service at the level of groups by cohort, sex and education, on a cross-sectional basis.

Additionally, however, it would be necessary to account for inter-group turnover, for individual mobility along the life-path, – from full to partial to zero employment and/or reverse, – otherwise pure cross-sectional group averages would result in overestimating the number of those who end up at pensionable age without 20 years of service that qualifies for eligibility. Unfortunately, data on such mobility are exceptionally rare as of today. Therefore, cross-section based projections of the non-eligible population will be regarded as an *upper-bound* estimate. In lack of information for estimating a reliable *lower-bound* figure, a very broad, cautious ‘confidence interval’ will be set between the upper-bound and *half* of the upper bound.

2. Exodus to retirement

WW2 and post-war hyperinflation wiped out the real-estate and financial wealth of previously operating funded pension schemes that covered about 50 percent of the working population. In 1949 a pay-as-you-go public pension system was established and then gradually expanded, finally codified in 1975 by a comprehensive Social Security Act. By the mid-1980’s coverage of the working population, as well as eligibility of older cohorts for old-age pension reached practically 100 percent.

In the early 1990’s the unprecedented decline in employment hit the system in two, parallel ways.⁵ On one hand, the number of contributors decreased dramatically, as shown in the previous part of this paper. On the other hand, retirement served as an escape route from unemployment for hundreds of thousands of people. Consecutive governments supported the exodus from the labor market by several – although temporary – forms of early old-age retirement arrangements and by effectively making disability pensions easier to obtain. The number of new retirees reached a historical peak in 1991 and did not return to its pre-1990 level until 1997. This was followed by a natural decline and the situation started to normalize around the turn of millenia. By that time, however, new disability pensions reached 56 percent of all new pensions. From 1999 to

⁴ See e.g. *Kertesi and Köllő 2002, Kézdi 2002*

⁵ For early experience see e.g. *Augusztinovics 1993*.

2001 there were even more disability than old-age pensioners among new retirees. (Figure 6.)

The dual pressure caused the *system dependency ratio* (the number of pensioners over the number of contributors) to increase from its 38 percent level in 1988 to 64 percent by 1996 and this rather high level persists until today. The financial balance of the pension system has become critical, aggregate pension expenditure must have been restricted.

The number of pensionable accrual years of new retirees, however, did not decrease over time, to the contrary it increased, as consecutive cohorts had gained from expanding employment deep in the past, in their young and middle age. Hence there were only two ways of curtailing pension benefits. One was to press down *entry pensions* by manipulating pensionable income in the pension formula (undervaluation of past inflation and keeping the ceiling on pensionable income unchanged in years of two-digit inflation). The other was to press down *continuing pensions* by wage-indexation while real wages were decreasing, then by the so-called „swiss“ indexation (half by wages, half by prices) when wages have been already increasing.⁶ As a result, *average real pension* – first following then overtaking the decline of real wages – lost approximately 30 percent of its value from 1989 to 1996. The „returns“ on a year of service thus dropped heavily and became functions of the calendar year of retirement rather than that of individual labor market accomplishment, resulting in a highly unfair distribution of pension benefits. (Figure 7.)

3. Pension reform 1998

A long-lasting debate on the necessity and the direction of a pension reform started already from the early 1990's, concentrating on the inherited and newly emerging distortions in the pension system. From 1995 the focus of the debate shifted to a new dimension, the public-private dichotomy, largely influenced by international financial institutions.⁷ At that time, none of the participating parties considered seriously the possible consequences of under-employment persisting for at least several decades.

In 1997 a paradigmatic reform was codified as a „compromise“ solution, to become effective on January 1 1998.⁸ The major innovation was a *partial privatization* of the system: 25 percent of employees' contribution going into private pension funds rather than into the public scheme. and 25 percent of the otherwise due public old-age pension foregone – without compensation for past contributions – by members of this „mixed“ system (membership optional for already employed, while mandatory for entrants to the labor market)⁹. Hasty legislation resulted in a number of unsolved problems, open to discussion until today.

One cluster of problems concerns the *private scheme*. Apart from significant but less prominent areas, two major issues should be mentioned. (1) Despite pre-reform calculations which revealed that for voluntary entrants above age 45-47 there is no chance for annuities receivable from the private pillar to substitute the lost 25 percent of the public pension benefit, Parliament refused „age-discrimination“ and did not put any age-ceiling on voluntary entrance to the mixed system. Hundreds of thousands of elder workers joined, whether misled or simply in lack of proper information is still fiercely debated but actually immaterial. They are about to reach pensionable age nowadays or

⁶ Acutally „swiss indexation“ has not been complied with systematically. In most years *ad hoc* corrections – sometimes favoring, sometimes harming pensioners – were introduced. Hence the effect of this indexation cannot be empirically observed, only in theoretical models. (E.g. *Simonovits (2003)*).

⁷ See e.g. *WORLD BANK 1994, Müller 2003*.

⁸ For details see *ILO 2002*.

⁹ Voluntary private pension funds, independent of membership in the public scheme, had been existing already from 1993. The reform did not affect their operation.

within a few years, only to realize that *their combined income from the two schemes will be less* (in many cases significantly less) than could have been expected from the 100 percent public pension.¹⁰ (2) The responsibility for *supplying annuities* is still unclear. Mandatory private funds are not obliged to pay annuities, and they do not seem committed to do that. At the point of retirement they may take the accumulated capital on the members' account and buy insurance for them, from an insurance company selected by the fund rather than by the member. The trouble is, however, that presently there are no such products available on the insurance market that would comply with legal requirements (e.g. unisex life-tables and indexation of annuities corresponding to indexation of public pensions). Experts say that should such products become available they would be extremely expensive. *Both issues* are due to become acute in the coming years.

The other cluster of problems concerns the *public scheme*. Changes did not seem to be significant at the time of the reform and did not attract much attention, as they have been phased in, to take effect over a period of several years.¹¹ In retrospect, however, nearing to 2013, the final year of this transitory period, - and particularly by estimating the entry pensions to be expected after that, - the general tendency, the end-result and the consequences are unravelling.

The basic outlines of the pension formula remain unchanged:

$$\text{entry pension} = \text{accrual factor} \times \text{number of years of service} \times \text{pensionable earnings}$$

with 20 years of service as a threshold for eligibility.

In the past and to a large extent even in the present, however, several additional rules have been in effect, favoring the poorer segments of the new retirees. The major ones are the following: (1) In some cases, under special conditions, 15 years of service instead of 20 qualify. (2) There is a minimum pension guarantee, no entry pension can fall below that. (3) Pensionable earnings are calculated in a degressive way, higher deciles of income are included in decreasing proportions. Most importantly, (4) the scale of the accrual factors is not linear, it can be represented by a step-wise downward sloping curve. E.g. it assigns 80 percent of the pensionable income as entry pension to 40 years of service, but significantly more than half, 53 percent to 20 years.

On one hand, these redistributive („solidarity“) components have been intensely and justifiably criticized for rendering the pension system less than transparent, counter-incentive to contribute for higher-income people, unable to provide fair income-replacement for labor market achievement. On the other hand, however, in an era of practically full employment, they seemed sufficient to protect the poor, to prevent extreme poverty in old age.

Somewhat ironically, these components are being phased out from the public pillar by the 1998 reform in an era of lasting low employment, of disrupted or fragmented working careers. Instruments listed above (1)-(3) will cease to be effective and, again most importantly, the downward sloping scale of the accrual factor will be replaced in 2013 by a constant 1.65 percent for each and every year of service. Thereby the „scale“ will become a linear function of the contributory period, moreover, it will provide significantly lower entry pensions, e.g. 66 percent of the pension-base income for 40 years of service

¹⁰ A temporary measure has been taken which allows those who have spent less than 10 years as members of the mixed system and would suffer more than 6 percent loss to „return“ to the „pure“ public scheme without consequences. This, however, is considered unfair with respect to those who have continuously payed full contribution to the public scheme, and is going to expire anyway as by 2008 the 10 years membership limit will be surpassed by most retiring persons.

¹¹ It should be mentioned that a step-wise increase of statutory retirement age to 62 - from 60 for men and 55 for women - was legislated prior to the reform, already in 1996.

and 33 percent for 20 years.¹² This might be the reason for having sustained the „pervertedly“ redistributive 20 years threshold of eligibility¹³ – below that impossibly low entry pensions could be generated. What else would people with less than 20 years of service live on in their old age, is presently unclear.

4. Pension promise until 2020

Old-age entry pensions in the 2010's are often supposed to be dominated by the retirement of the post-war baby-boom generation. Indeed, very large cohorts were born in the early 1950's. This, however, does not seem to be the major determinant in the Hungarian case. Mortality over their life-path has been still quite significant, particularly affecting middle-aged males. Thus their numbers at pensionable age will be much lower than at birth. Of those surviving, a high percentage is already or will be in disability pension at that age. Of those remaining, a large fraction will not qualify for old-age pension. The number of those who *may be expected to be eligible* for old-age retirement will reflect the birth-peak but at a much lower level and less extremely, certainly lagging significantly behind the historical retirement peak of the early 1990's. (Figure 8.)

Eligibility – 20 years of life-time service – and entry pension naturally depend on the entire working-age career rather than some selected shorter period. In lack of longitudinal data, however, the past (and future) of those reaching pensionable age in the coming one and half decade had to be estimated by the study referred to in Footnote 1, relying on scarce cross-sectional data and brave assumptions. Nevertheless, some reliable recent cross-sectional data might throw some light on the high ratio of non-eligibility. In 2005 for example, altogether in the 15 cohorts considered here (aged 45-60) 23 percent of the respective population was already retired, mainly – 17 percent – in disability pension. 56 percent enjoyed contributory employment, but one fifth of them over less than the entire year. Finally, *21 percent was neither retired nor contributing*.¹⁴ These are averages across educational groups. The numbers are much worse in the low-educated group (35 percent retired, only 36 percent contributing and 29 percent in the neither-nor category), the group which accounts for one third of the respective population. (Table 1.)

Estimated proportions on the entire working-age career are not significantly different from these recent cross-sectional distribution. They are diverted from them by two effects, driving into opposite directions and more or less balancing each other. Firstly, the early working years of these cohorts were spent before 1990, with much higher employment ratios. Secondly, their future employment, as already mentioned, has been estimated under a highly optimistic employment scenario. All in all, the share of non-eligible people over the coming 15 years, as derived from cross-section estimates, would reach about 20-22 percent of the respective population. Applying now the very cautious „halving rule“, suggested at the end of the First Part of this paper, it can be stated with high probability that 10-20 percent, altogether about 250-500 thousand people will be left without either disability or old-age pension at and after pensionable age over the coming one and half decade.

Estimated entry pensions of those eligible in these 15 cohorts are expressed as percent of the estimated overall average wage in the year of retirement – thereby the eternal problem of inflation and wage-dynamics may be circumvented – then averaged out over the 15 years period. Estimates are presented in *two versions*, one according to present

¹² The law stipulates that gross rather than net income will be pensionable and pensions will be taxed. However, no details are given and this statement is so unclear up to now that it will not be discussed in this paper.

¹³ The threshold is pervertedly redistributive since contributions paid over, say, 19 years by those who do not pass the 20 lower limit are lost for the contributor, he/she receives nothing and the contributions feed higher pensions for those eligible.

¹⁴ Some of them may be gainfully employed on the grey or black labor market but in lack of contribution that does not provide pension claims.

rules and one reflecting rules legislated for 2013 (see Part 4). Both versions are, however, applied *to the entire 15 years period* so that changing composition by cohort-size, sex and educational attainment over time should not distort the comparison of two pension formulae – both are applied to the same sample consisting of 15 birth cohorts.¹⁵ Annual average life-time contribution more than half year or less are distinguished since at least annually half year contribution over a 40 years long working-age career would be required to accumulate 20 years of service until pensionable age. (Under present rules those with annual average contribution of 4-6 months may still be eligible due to special conditions satisfied by 15 years of service.)

Marked differences by *educational attainment* and by the *average duration of employment* can be observed. Without going into details, however, the most striking difference between the two pension formulae to be pointed out is that the new formula *presses down the average relative entry pension by 15 percentage points, from 75 to 60 percent* of the prevailing average wage in the year of retirement. Within that, those with an average of annually less than full year contribution in the low-education group sink below the 40 percent ILO and OECD standard of „adequate“ relative income in old age. Adding those groups whose relative average entry pension would exceed 40 percent but remain below 50 percent, the number of people not excluded from eligibility but left with entry pensions less than half of the average wage may be estimated 250-300 thousand. (Table 2.)

Whether entry pensions are to be considered high or low depends on what is going to happen after retirement. If pensions are wage-indexed then a 60 percent relative entry pension would remain 60 percent over the retirement span which, on the average, could be considered satisfactory (without regard to groups of low-employment, low-income retirees). „Swiss“ indexation, however, or even the often suggested price-indexation, if steadily applied, would quickly depreciate relative pensions. Assuming a modest 2 percent increase of real wages over a period of 20 years, 60 percent at retirement would sink to 40 percent („swiss“ index) or to 20 percent (price index) of average wage at about age 80. Low relative entry pensions combined with less than wage-indexation seem to be unsustainable in the long-run.

Summing up: The pension promise for cohorts approaching retirement in the next one and half decade does not seem to be bright. Legislation presently in force indicates an increasing number of people excluded from eligibility, and at the same time lower entry pensions and declining continued relative pensions over the retirement span for those eligible.

5. Policy conclusions

Many analysts, governments and international bodies seem to be obsessed by the expected deterioration of the cross-sectional financial balance of pension systems due to ageing. The link between low employment and pensions, longitudinal consequences in old age of disrupted, fragmented or empty work-careers deserves as much if not more attention – while financial sustainability should naturally be preserved, as a necessary condition rather than the goal for reforms.

A pension system has two core objectives: fair income replacement, (i.e. “consumption smoothing” in economists’ parlance) and poverty alleviation in old age.¹⁶ The former implies actuarially fair insurance, the latter requires income redistribution. The two objectives may be more or less compatible within a single, contributory, earnings-related

¹⁵ Members of private funds are not separately dealt with, 100 percent public pension is calculated for all new retirees. This implies the assumption that annuities from private funds will in the longer run substitute the lost 25 percent of the public pension. If this does not happen then total retirement income of private fund members should be expected to be less than presented here.

¹⁶ Cf. Schmähl (2000), Augusztinovics (2003), Holzmann (2007).

pension scheme when practically full employment prevails, although both functions as well as transparency would be impaired to some extent. Amidst lasting under-employment, however, the compatibility seems to be vanishing.

The Hungarian pension system is now – belatedely, wrong place, wrong time? - moving towards more or less fair income replacement (except for those with less than 20 years of lifetime service) with respect to entry pensions. Below-wage indexation will decrease relative pensions over the retirement span depending on the length of the span, irrespectively of individual achievement. A large number of people will be excluded from eligibility to old-age pension benefit. Hence mass poverty in old age is looming ahead and it will not be dealt with by the pension system.

The system requires a new reform, this time not about the important, yet secondary public-private dichotomy, rather about the more basic problem of income security in old age. By sheer formal logic there seem to exist four options for the mandatory public scheme:

(1) Sustain a single, formally although not actually earnings-related scheme, but re-introduce strong (stronger than previously deemed necessary) redistributive components. Disadvantages: (1) opaque redistribution reinforced, (2) heavy, economically unjustified and undesirable load on labor income.

(2) Preserve the earnings-related pension system for fair income replacement and leave other branches of the so-called social safety net to deal with extreme old-age poverty on a means-tested basis. Risks: (1) difficult targeting, (2) high administrative costs in the social protection area.

(3) Launch a unique, universal, basic, flat-sum pension scheme on residential basis and leave voluntary, private retirement saving to deal with income replacement. Risks: (1) myopia, (2) free-riding.

(4) Split the present, unique scheme in two: one universal, basic, flat-sum scheme and one mandatory, actuarially fair insurance scheme. Counter-arguments: (1) the basic scheme is „too expensive“, and thus (2) leaves little room for the earnings-related insurance scheme.

In any of the four major above cases a number of contingent issues must be fitted to the fundamental choice, e.g. the division between wage-related contributions and general taxation in financing, the relationship between the public pillar(s) and the existing mandatory, private pension funds, connection between old-age, disability and survivors' benefits, etc.

A non-partizan Round Table of pension experts have been launched by the Prime Minister at the beginning of this year with the task of considering reform options and related issues. There is no deadline but a preliminary report is expected by the end of the year and possibly a final set of recommendations (including various options if no consensus can be reached) by the end of 2008.

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