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POPULATION AGEING AND THE TRAGEDY OF THE PENSION COMMONS

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Abstract. *The essay deals with sustainability issues of pension systems. Considering the functioning of the dividing–imposing systems, the definitive factors are the proportion and quality of active-age population and its willingness to pay pension contribution. It delineates the "prisoner's dilemma" situation of the approach of childbearing in today's social insurance pension systems. The fundamental problem with pension systems is that individuals with few or without children are in a better financial position by gaining more savings and having more time to spend on work which results in a higher pension income. Therefore, the dividing–imposing system erodes itself. The process is very similar to the tragedy of a theoretical common pasture described by Garrett Hardin. The most important lesson of the tragedy of commons is that individual rationality can lead to bankruptcy on the community level. Hardin was of the opinion that the tragedy of common pasture can be prevented by subdivision, namely privatisation. The present study examines the possible outcomes of the pension reform and what have been realised of these. The experience of the past decade demonstrates what confusion can be created and misinformation disseminated when the debate about the future of social security is left to those who have other interests than preserving an adequate social security protection.*

Key words: *ageing, fertility, pension systems, pay as you go systems, privatisation*

Introduction

A worldwide consensus has emerged that social security is at a critical juncture in its development and that an objective and broad-based discussion, involving all of the social partners, is needed to redefine social security. Pensions constitute the largest element of social protection expenditure in most countries, usually exceeding the amount spent on health care. Nevertheless, the percentage of GDP devoted to pensions varies enormously among countries.

Population ageing is a general phenomenon in most of the industrialised world. Declining birth rates and longer life expectancy are the main factors contributing to this process. As a result, the ratio of elderly people of working age (often referred to as the "elderly dependency ratio") is forecast to increase substantially in the medium to the long term, with a particularly steep increase foreseen after 2020, at which point the largest cohorts of the population will start to reach retirement age. Birth rates in industrialised economies

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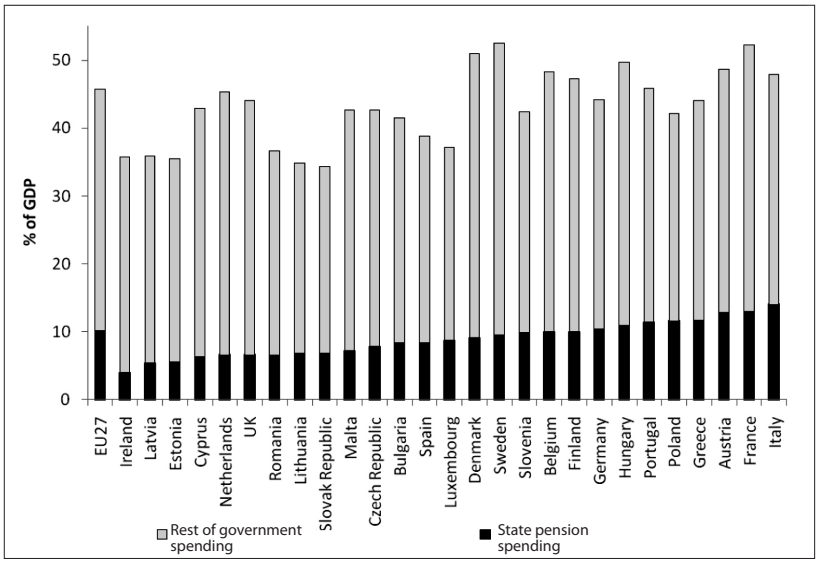

TABLE 1. **Government spending and the share of state pensions (2007)**

Note: Countries arranged in order of the size of state pension spending.
Source: Eurostat and Economic Policy Committee (2009).

have been declining substantially over recent decades. Current rates – an average of around 1.5 children per woman – are too low to allow for a natural replacement of the population and stabilisation of its structure. Longevity is another important determinant of population ageing. In 1960, the number of older people was about 22% of the number of employees, i.e. for every older person there were over 4 employees to provide support. Currently, there are about 3 employees for each older person, and after 2010 the trend changes sharply. By 2030, the size of the older population will grow to 50%, i.e. there will be only two employees per every older person. Thus, the potential fiscal and broader economic consequences of population ageing are a serious cause for concern.

Today, the low number of children is the issue that preoccupies most of the European demographists and economists. Every member state in the European Union faces declining population trends; as a result, the population of the union is projected to decline by 7 million by 2050, while its share in the world total population will decrease from 21% to 7%. Meanwhile, between 1950 and 2010 the number of dependents doubled, whereas, according to calculations, between 2010 and 2050 it will double once again, specifically the number of those people who should be supported by society if there were a sufficient number of active workers. There are two possibilities in the pay-as-you-go type pension system, i.e. in the system whereby state benefits to retirees are paid out of contributions from current workers: either the Europeans pay more contributions or the pension amount will be reduced. Neither of the solution is politically feasible; therefore, the operation of the pension system itself should be changed. The EU is facing a demo-

graphic challenge of aging: in the shorter term, the baby boom generations will retire in the 2010s and 2020s, suddenly increasing the number of pensioners. In the longer term, around 2050, the low birth rates of the last two decades will increase aging. Besides, according to predictions, a continuous decline in mortality rates and the longevity will result in pension loss (Feldstein, 2002, p. 10).

The EU Member States and Community institutions both place great importance on the tackling of the financial challenges of aging. Most people are affected by the conservation of pension financing. The expected problems are:

- difficulties in financing future pensions
- providing current expected benefits.

In the recent years, most European countries have changed the terms of the contract between the generations: the number of pension credits required for working life increased, the base period to calculate the amount of pension lengthened, pensions are strained by contributions for pensions, etc.

Assessing the demographic problems of pension systems, the study delineates the "prisoner's dilemma" situation of the approach of childbearing in today's social insurance pension systems. Considering the functioning of dividing–imposing systems, the proportion and quality of active age population are the definitive factors.

The key statements of the study are: 1. The pension systems established in the past century are partly responsible for the inadequate number of births. 2. The privatisation of pension systems, namely DC (Defined Contribution) financing, is not able to solve their sustainability problems since these systems are likewise not independent of demographic processes. 3. The NDC (Notional Defined Contribution) model, mentioned so often in today's pension reform debates, is also not a solution from the demographic point of view, although here all of the economic and demographic risks are borne by the beneficiaries (pensioners).

1. Research objectives

There have been many and varied opinions on the crisis of pension systems. The vast majority of research deal with the challenges caused by the aging society and concludes that the pay-as-you-go systems in their current form may not be sustainable. However, the study of the feedback effect received little attention in the pension system debates, although social processes are not one-way and there are many types of feedback; one of them is the relationship between family size and the pension systems.

From the seventies onwards, many authors have investigated the relationship between pension systems and birth rates. The majority of authors have agreed that there is a negative relationship between total fertility rates and social security programmes. Hohm (1992) has empirically analyzed the correlation between welfare systems and fertility in 67 countries and concludes that public pension system (welfare) programs have a nega-

tive effect on the fertility rate. Cigno and Rosati (1992) studied the potential impact of the availability of public pensions on fertility in Italy. They conclude that social security coverage has a negative effect on fertility.

The essay focuses and makes statements on the demographic effects of pension systems. At the same time, however, in connection to pension privatisations, it delineates two characteristics which are also types of the prisoner's dilemma game, namely that the pension system is, partly, the cause of inappropriate appurtenance payments, and that politicians necessarily postpone reforms and establish irresponsible demands.

According to Elster (1978), community decisions are the ones where all members of the given group participate in decision-making and the result of the decision appears on the community level. This definition leaves us with the question of what conditions and motives are present in such decisions. The group of decisions where the given group is facing the task of establishing commons is defined by Elster within the community decisions. If, however, there is a conflict between actions appropriate for an individual and actions rational for the community, the balance defined by the individually rational act – the Nash Equilibrium – will not coincide with the status best for the community – the Pareto efficiency.

From the pension system's viewpoint, the next generation can be considered commons since none can be excluded if for some reason they have an entitlement. In this context, pension provisions meet the requirement of no exclusion in the definition of commons. It is also not competitive if we consider that theoretically the measure of provision is controlled by the law; therefore, in a short run, it is not competitive (Olson, 1997).

In the context of an action creating commons, an individual in the community is considered of stowaway-behaviour if this certain person:

- attempts to drop out from the creation of commons;
- is not needed to create the given commons since efforts of the other members are enough;
- the benefit of the individual's desertion from creating commons is larger than that of the participation in its production;
- the absence of the individual from the creation of commons generates extra expense for the other members of the group who do participate in the creation (Runge, 1984).

Children are a potential resource for dividing–imposing systems since the source of all-time provision for elderly people are the payments from the following generations. The measure of social insurance payments depends significantly on fertility; therefore, the increasing number of children materializes in increasing returns for the social insurance pension system. At the same time, the dividing-imposing pension systems with individuals wanting to maximize their consumption during their active careers and their security in their old years necessarily lead to a decreasing number of children (Apps-Rees, 2002). If provisions of the dividing-imposing system become independent of the

number of children raised by its beneficiaries, the maximum individual consumption during active career can be reached by minimizing the number of children and maximizing labour supply (Mészáros, 2005).

2. The pension systems as the Commons

The demographic decline seems to go hand in hand with wealth. Demographic statistics show that fifty years ago each European country had a fertility rate above 2.1, but today not a single state can reach the same level in the old continent. The number of children will decline as the economy and society evolves; (post) industrialization discourages having children. In Germany, in the sixties, the fertility rate was 2.6, while now it is one of the lowest in Western Europe (1.36). The curve for other European countries is similar, too: in 2005, in the EU-25 the registered average fertility rate was 1.5, versus 2.7 in the early sixties (Table 2).

TABLE 2. **Total fertility rate (live births per woman)**

	1960	1980	2000	2008
Austria	2.69	1.65	1.36	1.41
Belgium	2.54	1.68	1.67	1.82
Bulgaria	2.31	2.05	1.26	1.48
Czech Republic	2.09	2.08	1.14	1.9
Cyprus	:	:	1.64	1.46
Denmark	2.57	1.55	1.77	1.89
Estonia	:	:	1.38	1.65
France	2.73	1.95	1.87	1.99
Germany	:	:	1.38	1.38
Greece	2.23	2.23	1.26	1.51
Hungary	2.02	1.91	1.32	1.35
Ireland	3.78	3.21	1.89	2.1
Italy	2.37	1.64	1.26	1.41
Latvia	:	:	:	1.44
Lithuania	:	1.99	1.39	1.47
Luxembourg	2.29	1.9	1.76	1.61
Malta	:	1.99	1.7	1.44
Netherlands	3.12	1.6	1.72	1.77
Poland	:	:	1.35	1.39
Portugal	3.16	2.25	1.55	1.37
Romania	:	2.43	1.31	1.35
Slovenia	:	:	1.26	1.53
Slovakia	3.04	2.32	1.3	1.32
Spain	:	2.2	1.23	1.46
Sweden	:	1.68	1.54	191
United Kingdom	:	1.9	1.64	1.9

Source: Eurostat.
http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Fertility_statistics

Over the centuries, in traditional societies children took care of their elderly parents, i.e. younger generations directed resources back to their incapacitated parents. Modern pay-as-you-go systems are basically the same, with the significant difference that the importance of the family relationships in the system has vanished. However, this does not change the fact that the more young people the system includes the more resources to the elderly are available (Marján, 2008, p. 62). For pay-as-you-go schemes to work, the proportion and quality of the working age population is decisive. The key to competitiveness on the labor market is investing in human capital, but this is not recognized and financed by the pension system and other benefits. Thus, the institutionalized pension system eliminates the need for the individual to invest in children (Sinn, 2004). It should be stressed, however, that the problem cannot be resolved by reducing pensions or the generosity of the system. Today, the fundamental problem of the system is that the individuals without children or having few children are financially in a better position since they gather more savings, spend more time at work, and their earnings decisive for pension calculation are also higher. The pay-as-you-go system is thus self-destructive.

The process is very similar to the case described by Garrett Hardin in the tragedy of the commons. The most important lesson from the tragedy of the commons is that individual rationality can lead to a failure at the community level; therefore, it is essential for the community to govern, and govern well, the use of available resources (the commons). The reasonableness of the decisions made in relation to the tragedy of the commons lies in their benefitting the individual who makes the decision at a particular moment. The commons are used commonly by the community. If there are no rules for the use of the pasture as to who and when can send and how many cattle to the pasture, the individual who drove more animals to graze can gain higher individual benefits. The concrete example: given is a common pasture in a village where ten herders' ten cows are grazing. Each is beautiful, fat and milks well. One of the farmers decides to release one more cow to the pasture. Thus, the cows give a bit less milk, since more of them share the same area. The herder grazing two cows gains profit, since the two cows give more milk than one cow did before, but the other farmers are at a loss, because one of their cows produces less milk than before. Other farmers are likely to follow the example, because nobody likes suffering losses. However, if an increasing number of farmers starts grazing two cows, the amount of grass available gets less and less, until the pasture becomes so crowded with cattle that they can no longer give milk. As a result, the farmers will go bankrupt.

If the herders had to decide, they would have further increased the number of cows, but this could not happen. Pride soon gave way to depression. The grass was less green and then became almost completely barren, as the countless herd were feeding on the grass faster than it could grow again. The cows got thin and sick. The farmers, of course, perceived the deterioration, but they felt powerless: all of them thought that reducing the number of their animals only would be of very little help, and ultimately they would be

at a disadvantage against the others. So very soon a tragedy struck: the cows all died, the farmers went all bankrupt, and their families were starving.

The example of the commons is about individuals increasing their short-term profits by reducing the long-term benefits for everyone else. The more members follow this strategy, the more likely the complete exhaustion of the economic base of the community will be. At the time when social insurance was established, appropriate child numbers were natural; therefore, the "agreement" had defined only liabilities in money and time periods and had not dealt with the conditions of labour reproduction. At the level of demographic behavior, to raise one child less than, without greater difficulties, a couple is able to can be parallelled to the "one more cow to the pasture" attitude. In both cases, the efforts to obtain short-term (and perhaps often only presumed) personal benefits cause – adding up at the societal level – more and more serious damage.

In the model, with their every decision, the farmers follow their short-term, narrow-sense self-interest. In other words, they behave as should the human prototype of modern economics, the Homo oeconomicus. Although this abstraction does not perfectly describe the real human behaviour, in today's society, to some extent, we all have become Homines oeconomici, because in the current socio-economic establishment, in most cases, this type of behaviour is rewarded. In the parable, both short- and long-term interests on the one hand and individual and group interests on the other are opposed to each other: the short-term rational behaviour from the farmers' point of view (one more cow on the pasture) in the longer-term leads to the tragedy of the group (village, community); consequently, the individual farmers and their offsprings will suffer. Therefore, two fundamental questions arise: (1) how could the competitive behaviour of the group members (not necessarily individuals only) who are concerned with their own short-term interests but who are threatening the group's well-being through environmental damages be prevented? (2) How might cooperative behaviour considering also longer-term aspects and serving the welfare of the group (the public good) be promoted?

The reality today is that social security works as a huge "commons". Most European pension formulas do not make pensions depend on the number of children in any significant way. Typically, the size of the pension depends on the overall contributions paid during one's working life or on the fact of being a citizen, but not on the number of children raised. The system provides a financially better position to individuals without children or having few children since they are able to gather more savings, to spend more time in employment, and their final income decisive for the calculation of retirement payment is higher. As a consequence, although for the operation of the pay-as-you-go system the proportion and quality of the working age population is decisive, the chronic population decline is equally due to the operation of the social security system. The pension system is not only subject to demographic trends but it also generates them, as the comprehensive insurance system embracing the whole society conveys the message: you don't need to have sons and daughters because when you grow old, it is the paternalistic society who will support you, not your children.

The statistics (Eurostat by the European Commission) clearly show that the less the individual is committed to society, including the "burden" of family and child-care, the more he can save. If someone decides not to have children, he can live a better active life, and by the retirement age he will, also beyond the mandatory systems, be able to ensure his individual safety net at a higher level than others. The main problem is that the pension scheme secures the right to the old-age benefit without ensuring a sufficient number of offspring generations raised according to the requirements of the age to whom those who have left working-age could submit their claim for care. Moreover the system itself generates counter-interestedness by rewarding far higher pensions to individuals who do not have children, and thus do not contribute to the maintenance of the system (Fekete, 2007).

3. Retirement privatisation: defined contribution systems

According to Hardin, the tragedy of the commons can be overcome through "enclosures" i.e. privatization. In the 90s, this emerged as a promising option for pension schemes as well. A much supported possible solution was the introduction of a mandatory pillar operated by private pension funds, which was said to have several advantages. It would boost the capital market thus contributing to economic growth, providing incentives and transparency to the system. In economics textbooks, privatization is generally considered to increase efficiency and to reduce costs.

"Averting the Old Age Crisis", the 1994 policy research report by the World Bank layed down the new guiding principles of the pension policy. The trend that has emerged in the wake of the report, the "new pension orthodoxy", has developed a universal strategy in response to the global problem of aging, which includes not only social considerations, but also meets macro-economic requirements. According to the World Bank, the only way out of the pension crisis is a multi-pillar system which seems to follow the Chilean model. The World Bank says that the pension scheme has to meet two opposing requirements. First, it has to maintain a safety net for elderly people; secondly, pensions proportional to lifetime earnings and contributions have to be paid. The one-pillar system is unable to simultaneously meet these conflicting requirements, it cannot achieve the goals to social redistribution and the need to create interest savings at the same time (World Bank, 1995).

The arguments about the expectations on private pension funds are the following: (a) an important goal is to eliminate the contribution avoidance, to establish the link between contributions and payments and thus to make future emoluments transparent and calculable; (b) the state reduces engagement in the old-age security and the role of the market gets strengthened. Privatization increases efficiency and cuts costs by creating competition; (c) the transition to privately funded pension funds increases long-term savings and thus investment, which will contribute significantly to economic growth. The pillar operated by private pension funds boosts the capital market, thus contributing to

economic growth; (d) and finally, privatization is not a promise of providence to society in general, but claims that the individual alone is able to provide for himself. Over the past decades, the argument that due to the missing generation after them the last generation of the pay-as-you-go system, with nobody supporting them, will suffer and go hungry, has often been raised in debates.

(a) Studies on the sustainability of pension financing point out that the determining factor is not only demographic dependency, i.e. not only the ratio of elderly to the working-age population, but also the ratio of contributors to pensioners, the so-called system dependency ratio is conclusive (Fultz-Ruck, 2001). But, as the Central European experience shows, the privatization of the pension system alone does not improve this rate; the involvement of the mandatory private pillar has not increased employment. Even if the private pension system and savings on the private savings' account become general, large parts of the working-age population, being permanently unemployed, cannot join. Because of their everyday livelihood issues, people do not care about their future pensions, and often they are glad to have some possibility of work registered on the minimum wage level or on the black market. That is why employment is the most acute part of the today's pension system: few people work and even fewer pay the contribution.

(b) Exaggerated hopes about the expected yields have often been raised as arguments for the pension reform. Longer-term trends in yields depend on how the volume of assets is expanded and the rate of growth increased by pension savings turned into investments. However, if the activity rate in society declines, the need to accumulate capital cannot increase infinitely, resulting in a savings surplus. Therefore, the linear evolution of the capital market, and the market in general assumed at the time of envisaging the reform, is questionable. As for private pension funds returns, it has turned out that the mere fact of transforming something into a market-based model is no absolute guarantee for it to become more efficient than public funds (Tapia, 2008).

(c) When the mandatory private pension funds were introduced, enhancing the propensity to save played an important role. The pillar operated by the private pension funds was expected to boost the capital market, thus contributing to economic growth. It soon turned out that accumulation itself cannot directly imply the conclusion that, as a result, savings or capital accumulation in the whole of the economy will increase, because, if used to finance the state budget deficit, it is not related to capital accumulation. The high share of government bonds in investments questions the rationale behind the private pension funds. They were created to grant employees an opportunity to earn profits in more efficient ways, instead of transferring pension contributions to the government. It is but squaring the circle if the intermediary – moreover, high cost – organizations transfer the savings to the state as well. It is nothing more than bringing forward the deficit over time (Botos, 2003).

(d) And finally, the demography issue. Neither the private pension system nor the state system can tackle the demographic crisis. It is simply because, after a while, as a

result of the distortion of the internal balance of the population, the downward pressure on the price of pension claims, generated by the supply–demand mechanisms, appears in the private system, too. In other words, if we fail to restore the balance in the population, the increase in either the retirement age or in pension contributions, or the reduction of the real value of pensions, or some combination of all three "solutions" is inevitable. There is no doubt that in a fully funded system, the fate of the last generation would be the same as in the pay-as-you-go (PAYG) system: there is money, but in a vanishing economy there is nothing it could buy. Moreover, the fact that during the absence caused by childrearing there is no payment, further increases the financial counter-incentive to childbearing as something that generates difficulties and reduced income on the labour market. The accumulated capital is of no use, if (like in the case of Robinson on his actually uninhabited island) there is nobody to create a high profit – an appropriate security for the old age – from it; therefore, the accumulated capital is devaluated if the demographic processes are wrong. Thus, the main lesson is that in the case of both funding principles, curbing the decline of the population will be inescapable.

4. Partial privatisation? Retirement privatisation: notional defined contribution systems

The NDC model's popularity has risen in recent times. The funding of NDC is partly based on the PAYG DB system as pension benefits are directly linked to payroll contributions, and notional accounts are not capitalized. Individual notional accounts are not representing a "time-related" part of some invested fund, but are rather claims to be financed by contributions, i.e. part of future earnings. The two other important features of the NDC scheme compared to Defined Benefit (DB) systems is that a) entitlements are registered continuously and in value, and that (b) the economic and demographic risks are entirely taken by the beneficiaries (retirees) since the contributions are fixed, and, not even in the event of financial difficulties, they can be raised without increasing system liabilities proportionally (Ivicz-Schlett, 2001, p. 717).

However, from the individual's point of view, the NDC system operates like a private pension fund membership. The pension contributions on labour income paid by employer and employee and allocated to the state pension pillar are recorded on an individual account. Moreover, nominal yield is established to ensure the sustainability of the pay-as-you-go financing. On retiring, the individual account's balance is converted into pension payments by a mathematical procedure. The NDC is a system of settlements, which ensures a close relationship of the contributions with the pensions. Compared to a pension savings account converted into an annuity, an important difference is that these are nominal returns and account balances. NDC funding will remain a pay-as-you-go scheme, and the contributions are spent on retirement payments.

The main arguments of NDC supporters are as follows: (a) improved transparency, thus increasing the role of individual responsibility, (b) the increased willingness to con-

tribute, since the contributors are continuously aware of the accumulated (virtual) balance and the value of the annuity that the outstanding balance can buy them under the existing demographic conditions, (c) since the NDC records everything in money and informs the contributors in this denominaton, a revaluation of the (nominal) account balance that replaces the pension entitlement will become politically costly, thus increasing the pension entitlement protection, and (d) the amount of social security pension payments is made entirely dependent on payments and external (economic and demographic) variables. Thus, political deals get excluded from the pension system and left to a set of rules that is familiar to everyone, commonly recognized and respected (Barr, 2002). The NDC increases the already accumulated pension promises in an actuarially sound manner, i.e. the implicit pension debt (of a questionable practical importance) is not increased (Valdes-Prieto, 2000, p. 405–412).

Even critics of the NDC recognize that this is an elegant and useful theoretical model. Their arguments are mainly against the practical feasibility, building partly on theoretical considerations and partly on the experience from NDCs that have been realized. These are, broadly, as follows: (a) NDC makes the yield on the virtual accounts with the alternative, but "real" returns on savings comparable, furthermore these savings are available during the life cycle; so, the willingness to contribute is influenced (according to critics, deferred) by an additional factor: the comparability of yields and the resulting incentives to find "alternative investments" (tax avoidance); (b) if the fully funded system – with its real balances and yields – could not improve the willingness to contribute, the NDC will also be unable to do so as the fiscal discipline is to a much greater extent determined by the past experience and the overall tax burden than by promises for the future; (c) the NDC has all the inherent problems of the traditional pay-as-you-go defined benefit pension system, and the private pension system thus is exposed to as high political, economic and demographic risks as are those two systems together: if in a country it is impossible to operate the social security system and / or the private fund sector, it can be feared that the NDC will not work properly, either; (d) the legislative power, driven mostly by political reflexes, cannot be limited effectively since there is no one to control it but the voters who are neither knowledgeable nor sufficiently involved to oversee political processes. As a result, it is the voters and their representatives in Parliament who will be eager to cut the shackles of the politician chained to the mast, if it comes to it.

Conclusions

As we have seen, the main issue in the case of the pension system is the same as in the case of the commons: how can the individuals be persuaded to adopt sustainable behaviour? That is, how can the welfare state, instead of increasing the passivity, increase the personal prosperity of individuals and at the same time strengthen their sense of responsibility and, in the long run, provide the framework for a normal decent life, with the emphasis on the long run, because a botched scheme can guarantee a very short-term

assurance only, which in turn intensifies fear and the fear of slipping off people. How to set up a diagnosis?

- welfare and pension costs are intolerably high,
- it increases the chances of passivity or even abuse,
- it does not account for the accelerated ageing of European society.

The population pyramid is threateningly distorted, with more and more beneficiaries and fewer contributors. The global spread of the consumer model is boosting expectations, while the willingness to sacrifice is on the decline .

Today, all over the world, a number of government laws, regulations and incentives seek to encourage and promote sustainability, for example, environmental protection. One of their key features is that they seek to persuade people to adopt the public-interest-oriented (for example, environment-conscious) behaviour by making it the most beneficial alternative for them. It cannot be otherwise in the case of the pension system, either. In a future-oriented pension reform, it is essential to consider how many children (and, not unimportantly, children raised at what standard) parents produce to contribute to the social workforce. The tragedy of the social security system is that in the long run, those who contribute to the maintenance of the system with having more children are at a disadvantage. Therefore, linking long-range guarantees for the consistency of child-rearing and promotion into the instruments of family and population policy is imperative.

The only real solution of the pensions crisis would be if the the amount of benefits were made dependent on the number and, mainly, the quality of children. Currently, there are huge contradictions in this regard. In Germany, for example, an unborn child's contribution to the pension scheme – on an annual basis – will be, at the net present value, ten times higher than the value of his mother's benefit payment from the same system. At the political level, it is often said that we are building a society based on knowledge assets and the role of human capital is increasing in the globalized world. Thus, for the individual, the institutionalized pension system eliminates the need for investment in children; moreover, those who are rearing the future tax payers and contributors are at a disadvantage. The pressure of global competition is already suffocating, because (a) maintaining the current PAYG pension systems or, more precisely, the capacity to pay persistently higher than the absolute minimum of pensions requires the imposition of high contributions on the incomes of those few who cannot or do not want to escape this obligation. Consequently, (b) contributing labour becomes more expensive, thus (c) global competitiveness weakens, which a responsible government cannot let happen, so (d) it is still forced to reduce contributions.

The solution is to reduce the opportunity cost of child care, and the much smaller share of the returns on the investments in human capital (i.e. the proceeds of childbearing) should be publicly socialized, i.e. "distributed" among the childless population. Therefore, the scores should be differentiated / weighted individually, according to the number of active workers contributing. Pensions payments may be weighted with the

annual rate of contributions or tax-paid. Through this, the cost of education can also be recognized in pension payments (Gál, 2003).

It is important to note that in modern societies the cost of bringing up children is very high, and a much larger portion of it must be borne by the parents (Lindert, 1983). Skilled and flexible workforce is essential not only for a country's economic competitiveness, but also for the sustainability of the pension system. It is well known, namely, that by analysing either the world's population or the demographic trends in the developed countries the same scheme emerges: the number of births is higher in places where overpopulation results in inherently intractable conditions, and low where conditions are the best. Within rich societies, the same phenomenon has become commonplace: the number of the low-income and less qualified third is growing fast, while in the upper third the number of children is exceptionally low. Children represent net financial gains for parents with low incomes, the costs of bringing up their children remain low, while broad social benefits provide substantial income transfers for them. This is the reason why in this group the fertility rate is often maintained at high levels and the parents' demand for children is not declining (Browning-Lechene, 2003). The European example shows, however, that if having children is no hidrance to a woman's career, more children are born.

There is a growing recognition that privatisation is not the "magic bullet" and that a mix of financing approaches is a prudent way of guarding against the unpredictable performance of the market and other factors that impact the level of economic output. The role of the state in ensuring an adequate retirement income is no longer contested, since even the proponents of private and funded approaches concede that the state must provide a "decent" safety net to these who are not able to save for their old age and that the state must serve as the regulator (and some would even argue as the guarantor) of privately managed pension arrangements.

The experience of the past two decades demonstrates what confusion can be created and misinformation disseminated when the debate about the future of social security is left to those who have other interests than preserving an adequate social security protection. Thus, the lesson is that economic growth and increasing globalization do not necessarily reduce poverty or increase the social security protection of citizens. It should be noted, with a certain sense of irony, that at the same time as the welfare state has been called into question, the number of those living in poverty has increased in many countries around the world.

REFERENCES

Adseva, A. (2004). Changing fertility rates in developed countries. The impact of labor market institutions. Journal of Population Economics, Vol. 17.

Apps, P., Rees, R. (2002). Household consumption, full consumption and the costs of children. Labour Economics, Vol. 8. pp. 621–648.

Auerbach, A. J., Lee R. (2006). Notional Defined Contribution Pension Systems in a Stochastic Context: Design and Stability. December. http://elsa.berkeley.edu/~auerbach/NDC_Stability.pdf pp. 2–3.

Augusztinovics, M., Gál, R., Matits, Á., Máté, L., Simonovits, A., Stahl, J. (2002). A magyar nyugdíjrendszer az 1998-as reform előtt és után. Közgazdasági Szemle, June XLIX.

Averting the Old Age Crisis. (1994). Polices to Protect the Old and Promote Growth. A World Bank Policy Research Report. Published for the World Bank, Oxford: Oxford University Press.

Ágoston, K. Cs., Kovács, E. (2007). A magyar öngondoskodás sajátosságai. Közgazdasági Szemle, June LIV.

Barr, N. (2002). Reforming pensions. Myths, truths and policy choices. International Social Security Review, Vol. 55, Issue 2, April–June, pp. 3–36.

Botos, K. (2003). A rendszerváltozás és a pénzügyi politika. In Pénzügypolitika az ezredfordulón. Ed. Botos. K. SZTE. GTK. Szeged: Jatepress.

Caldwell, J. C. (1982). Theory of Fertility Decline. New York: Academic Press.

Cigno, A., (1991). Economics of the Family. Oxford: Clarendon Press.

Cigno, A., Rosati C. (1992). The effects of financial markets and social security on saving and fertility behaviour in Italy. Journal of Population Economics, Volume 5, Number 4, pp. 319–341.

Cullis, J., Jones, P. (2003). Közpénzügyek és közösségi döntések. Budapest: Aula.

Disney, R. (1996). Can We Afford to Grow Older? A Perspective on the Economics of Aging. Cambridge, Mass.: MIT Press.

Disney, R. (2000). Declining public pensions in an era of demographic ageing: will private pension fill the gap? European Economic Review, Vol. 44, No. 4–6. pp. 957–973.

Elster, J. (1978). Logic and Society. New York: Wiley.

Eurostat. European Commission, http://epp.eurostat.ec.europa.eu/portal/page/portal/household_budget_surveys/Data/database

Eurostat regional yearbook (2010): Population http://epp.eurostat.ec.europa.eu/portal/page/portal/europe_2020_indicators/headline_indicators

Fekete, Gy. (2007). Európa! S.O.S.! http://nepesedes.hu/drupal/node/271. Retrieved in July 2007.

Feldstein, M. (2002). The future of social security pensions in Europe. Journal of Financial Transformation, Capco Institute, Vol. 5, pp. 8–12.

Fultz, E., Ruck, M. (2001). Pension reform in Central and Eastern Europe: An update on the Restructuring of National Pension Schemes in Selected Countries. Budapest: International Labour Office. Central and Eastern European Team.

Gál, R. I. (2003). Apák és fiúk és unokák. Budapest: Osiris.

Gedeon, P. (1999). Szociális piacgazdaság vagy mégsem? A Világbank és a magyar nyugdíjreform. Társadalom és gazdaság, 2/XXI.

Girard, A., Roussel, L. (1982). Ideal family size, fertility and population policy in Western Europe. Population and Development Review, 8/2. pp. 323–345.

Hardin, G. (1968). The tragedy of the commons. Science 162 (3859), pp. 1243–1248. DOI:10.1126/science.162.3859.1243.

Hohm, C. F. (1975). Social security and fertility: an international perspective. Demography, Vol. 12, pp. 629–644.

Income security and social protection in a changing world. (2000). Geneva: World Labour Report.

Ivicz, M., Schlett, A. (2001). Gondolatok a társadalombiztosítási nyugdíjrendszer újratervezéséről. svéd minta alapján. (Reflexions on the new schedule of the social security's pension system on the base of the Swedish model). Pénzügyi Szemle, 46 (Aug. 2001), pp. 715–719.

Lindert, P. (1983). The changing costs and benefits of having children. In R. A. Bulatao, R. D. Lee (eds.). Determinants of Fertility in Developing Countries. New York,: Academic Press. pp. 494–516.

Magyarország. Szerkezetváltás és tartós növekedés. (1995) Világbank Országtanulmány. Washington, D.C.: World Bank.

Marján, A. (2008). Az öregedés és az európai nyugdíjrendszerek. Pénzügyi Szemle. 1/2008, pp. 53–64.

Mészáros, J. (2005). A társadalombiztosítási nyugdíjrendszerek, mint közjószágok. Közgazdasági Szemle, 52, March, pp. 275–288.

Morvayné Bajay, Zs. (2010). Demográfia és nyugdíj, avagy Robinson a lakatlan szigeten. Polgári Szemle. pp. 50–59, 4/6 (4/2010.)

Müller, K. (1999). Az „új nyugdíj-ortodoxia" és ami mögötte van – a nyugdíjrendszer átalakítása Közép- és Kelet-Európában. Külgazdaság, XLVI.

Németh, Gy. (2007). Alternatív paradigma. "Nyugdíj és időskor" témájával foglalkozó kerekasztal. Április 17-i ülés.

Olson, M. (1997). A kollektív cselekvés logikája. Budapest: Osiris.

Orbán, G., Palotai, D. (2005). A magyar nyugdíjrendszer fenntarthatósága. MNB Tanulmányok (40). Budapest.

Orszag, P. R., Stiglitz, J. E. (2001). Rethinking Pension Reform: Ten Myths about Social Security Systems. Megjelent: Holzmann, R., Stiglitz, J. (ed.): New Ideas About Old Age Security: Toward Sustainable Pension Systems in the 21st Century. World Bank, January, pp. 17–56.

Prinz, A. (1990). Endogenous fertility, altruistic behaviour across generations and social security systems. Jowinal of Population Economics, pp. 179–192.

Runge, C. F. (1984). Institutions and the free rider: the assurance problem in collective action. Journal of Politics 46, pp. 154–181.

Sinn, H.-W. (2004). The pay-as-you-go pension system as a fertility insurance and enforcement device. Journal of Public Economics, Vol. 88, pp. 1335–1357.

Stiglitz, J. E. (2000). A kormányzati szektor gazdaságtana. Budapest: Közgazdasági és Jogi Könyvkiadó.

Tapia, W. (2008). Comparing aggregate investment returns in privately managed pension funds: an initial assesment. OECD Working Papers on Insurance and Private Pensions, No. 21, OECD publishing.

Valdes-Prieto, S. (2000). The financial stability of notional account pensions. Scandinavian Journal of Economics, Vol. 102, September, pp. 395–417.