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Pensions containing allowance paid by children – why and how?

SUMMARY: The present pension systems allocate only a minimal allowance (about 1 or 2% of the total pension budget) to those who raise children, endangering the reproduction of the population and leading to an ageing society. Here we suggest a pension model based on the expenses of child-raising families amounting to 10 to 15% of the total amount of pensions (about 25% of mothers' pensions). The financial source of this system can be a separated and well-defined ratio of children's pension contributions paid for at least 13 years until the age of 37. Mothers reaching the retirement age could obtain the suggested pre-determined amount of pension supplement (approximately HUF 140 thousand per children tailored to the demographic and economic conditions in Hungary). According to the financial balance of our model, the net effect on the state pension budget would be negligible. While the total amount of the pension budget with the changes concerning mothers would largely remain unchanged (according to the forecasts), its structure could significantly favour families raising children and it could have a positive impact on the social preferences of the population.

KEYWORDS: fertility, population reproduction, human capital accumulation, pension system
JEL CODES: E24, H55, J13, J14

To date, pension debates and pension reforms have primarily dealt with the way the pension claim is produced, and have almost completely ignored that it is not enough to meticulously add the claims to the pension, because we cannot do anything with the countless claims if in the meantime a new generation is not brought up from which the claims can actually be collected. Modern pension systems hardly acknowledge raising children (with 1–2% of the pension). This contributes to a decline in the willingness to have children and thus to the ageing of the population. According to our intention, this situation would be corrected by the allowance paid by children in mothers' pensions as presented in this article. Its main source would be a pre-determined portion of the contribution paid by their children for a pre-determined period of time. In contrast to other similar proposals, our proposal requires children to contribute to the provisions for pensions with their contributions, as this way not only pension claims would be produced after children but their source as well.

To facilitate implementation we developed a model adjusted to domestic demographic and public finance conditions in which approximately one quarter of the pension expenditures spent on women would be received by mothers as allowance paid by their employed children. At the end of the article an impact assessment in which the parameters of the model (employment, fertility, number of people entitled to widow's pension) are changed is

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also described, and the applicability of our system in various scenarios is also presented. Of course, the best proof of the success of the model would be if it entailed an improvement in both productivity and employment. Namely, the serious funds pensions entail indicate to parents and their children alike that the pension system works in a generational chain. Neither party may forget about their interdependence. *Goethe* expressed the deep philosophy of it in an even more concise manner than scientists specialising in the subject: "Into the whole how all things blend, Each in the other working, living! How heavenly powers ascend, descend, Each unto each the golden vessels giving!" (Goethe: Faust, 1980)

RAISING CHILDREN AND PENSIONS

In today's Hungary, with its pension contributions paid to the pension fund, a couple of parents of the productive generation make a contribution of some HUF 50 million to the public pension fund of its generation. At the same time, if they bring up two children, they contribute an additional "investment" of HUF 65 million to the pension system (assuming that the children will work and pay contributions, the chance of which is just over 50% assuming today's employment situation remains unchanged).

> Today, the cost of raising one child is HUF 30–35 million (if the payments to the budget by the family are added to the family expenditures in proportion to the fiscal expenditures spent on the child, and if the work spent on the children is also expressed in forints in line with the relevant statistical standards). Accordingly, a couple of parents that brings up two children facilitates future production and makes a contribution with an investment of HUF 65 million to the Hungarian "pension economy" of the future.

In light of all the above, today, when the pension system is being retailored, it should be an important aspect that the system also acknowledge (as a form of value creation and pension investment) the raising of children by families and the help provided to children for them to find their way in the labour market.[1]

The generational correlations of providing for the elderly were obscured by the Bismarck pension model. Several generations have grown up with the false belief that the pension system can be rendered independent of the reproductivity of families.[2]

The two-generation family model evolved as a result of modernity and family strategies adjusting to industrial structures.[3] As a consequence of the narrowing of intergenerational family ties, a pension system facilitating old-age provision has become necessary.[4]

> Seen from today's perspective, the introduction was not too difficult. Namely, one must not forget that 100 hundred years ago pensions were a "reward" for a small number of people who lived long lives. Therefore, low contributions were sufficient, as (contrary to the current situation) few people lived long enough to reach retirement age, and even fewer of them could enjoy their pension for a subsequent 10–15–20 years.

The characteristic features of classical pension systems are that they:

- concentrate on the individual, disregarding family or generational reproduction,
- are (mostly) financed from contributions as a proportion of earnings,
- acknowledge that higher earnings ensure eligibility for a higher pension,
- generally implement a smaller or greater redistribution (on social grounds, as an acknowledgement of the burden on women in connection with having children, and due to pressures from various interest groups).

Two basic models are generally mentioned. One of them is the pay-as-you-earn system, the other is the pay-as-you-go system. Within that, there are at least 8–9 important aspects for classifying the individual subtypes. It is difficult to change any pension system, not only due to professional considerations (due to their complicated nature and prolonged introduction), but politically as well, as doing so affects rights that were acquired during decades.

It is typical of these models (and regrettable) that laying the foundation of old-age provision and raising children are separated from one another.

EUROPEAN PENSIONS: ACKNOWLEDGEMENT OF SOME YEARS OF CHILD-RAISING

In the last two decades, European systems responded to the decline in the number of births and to the rapid ageing of the population[5] (as well as the resulting higher demand for pensions and fewer payers) in two ways:

- they reduced the value of later pensions, with various amendments;
  [Taking into account the individual's average earning in the period instead of the years of high earnings, higher retirement age, lower multipliers upon establishing the value of the pension, general reduction of the pension level in the case of an increase in life expectancy (and accordingly in the demand for pensions) etc.]
- in determining the pension amount they take into consideration that on account of raising children a mother can be employed for a shorter period of time. Nowadays, in the majority of European countries a portion of the time spent raising an infant is already acknowledged in calculating the value of the pension. The following three methods are applied:
  - up to a certain level (for example up to the minimum wage or the value of earlier earnings) the state pays the pension contribution due to the pension fund instead of the individual,
  - 1–3 years of the time spent raising an infant is taken into account as if the mother had worked,
    [It has a similar effect that in countries where pensions are determined on the basis of a point system (for example in Germany and Norway), some (1–3) years of the time spent raising a child are taken into account with a higher than usual index number.]
  - 1–3 years (per child) of the period spent raising children are included in the minimum time required for pension eligibility.[6]

The usual result of the methods presented here is that the pension of the parent concerned (generally the mother, but in some countries the father as well) is increased by 2–4% in the case of one child and by 3–8% in the case of two children.[7] Overall, as a result of the corrections applied, the total pension of women may increase by some 2–5%. While a saving of as much as 20–25% could be achieved by restraining expenditure requirements, the allowances related to the acknowledgement of the time spent raising children may have reached a mere 1–2% within the total spending on pensions in the countries concerned. It means that according to the figures the steps taken in the second direction received a much more subordinate role.

What is positive in the aforementioned corrections is that they acknowledge: 1–3 years per child are lost from the employment career of the parent on account of bringing the child up. At the same time, it is not taken into account that bringing up a child requires much more sacrifice than those few years spent raising a growing infant. Much more self-sacrifice is required of parents in terms of care, upbringing and finances as well.[8]

The above described adjustments of the pension system do not proportionately take account of the negative effect of the demographic impact – the ageing of the population – on the pension system. A higher number of children – in parallel with adequate employment – would considerably rev up the decelerated growth of economies and add to the revenues of general governments. Relative to this magnitude, we cannot consider a 1–2% adjustment of the pension system in connection with raising children as really generous.

If – for example, as a result of amendments to the pension system encouraging people to have children and facilitating employment – the number of children in Hungary grew by 9 thousand every year, in 20 years annual general government revenues could increase by as much as HUF 100–120 billion p.a. This is a magnitude for which we believe it is worth "tuning" the demographic message of the pension system to a more vigorous level than is presently the case. This is what we are proposing.

TAKING DEMOGRAPHIC FACTORS INTO CONSIDERATION – THEORETICAL ASPECTS

Earlier, within Europe there were larger-scale proposals pointing in other directions as well, but they were ultimately not accepted.

> In Germany, the expectation that those who raise fewer offspring should receive allowances only in the case that a higher pension contribution is introduced arose as far back as 55 years ago. The proposal and its refusal by Chancellor *Adenauer* are discussed in detail in several papers and presentations by *Katalin Botos.*
> *Tamás Mészáros* mentions numerous authors according to whom the raising of offspring should also be taken into account in determining pensions. One of them is of the opinion that the considerable decline in the number of births in the developed world is attributable to pension systems.

Below is a list of the main questions encountered by those who would like to take account of the demographic factor as well during the adjustment of a pension system.

- What percentage of the total pension should depend on demographic factors?
- Should regulation stick to an age-group approach[9] (comparing generations – holding them "responsible" vis-à-vis one another), or "descend" to the level of the individual or family (more specifically, should it take into account the number of children brought up by the given person)?
- Should the allowance depend on the number of working children or on the earnings of the child as well?
- Should the mother receive the generational pension or the father as well?
- Should it be taken into account whether the child is gainfully employed and/or whether (s)he is raising any (grand)children?
- What is the source of the allowance?
- Should it operate as a pay-as-you-go or as a pay-as-you-earn system?
- Is it also intended to improve the employment opportunities of those who are raising children (for example, via a lower social security contribution)?
- How is it advisable to operate the proposed system? As a part of the existing systems or in parallel with them?

In addition, it is a question whether with the amendments the new system should adopt the "paying individual – then the community making good use of the contributions – finally the individual granted the allocation" basic scheme, or it should create a (specific) quantifiable pension relationship between the individual and his/her family. Even in a way that a significant portion of this relationship would be organised without the involvement of a public (or financial) participant.

PROPOSAL FOR ALLOWANCE PAID BY CHILDREN[10]

According to the proposal drawn up in this article, the demographic factor should be taken into account in a way that a specified amount would be credited under this pretext to a separated account covered by children from the contributions of the (already working) children. Those parents (mainly mothers in this scheme) who have brought up tax-paying citizens would receive provisions from this account.[11]

The child-based pension element would acknowledge child-raising activity as a monthly fixed amount (a lump sum) in the mother's pension (assuming her child has worked a specified number of years). The allowance would be adjusted to the number of children.

> The provision should be tied to whether the child "has produced" the parent's child-based pension entitlement by the age of 37, i.e. if the child has worked a sufficient number of years and paid enough contributions to entitle the mother to the pension element covered by her child.

The child-based pension element would be of a pay-as-you-go type. Its source could be a given portion of the pension contribution paid after the child. Preferably it would be a fixed amount (for example, the extent of the contribution due after 15% of the average earning, i.e. HUF 10 thousand per month), which would be paid to the mother by the child brought up, until he/she reaches the age of – let's say – 37. The mother, in turn, would receive a monthly allowance of HUF 12 thousand after each working child. According to our calculations detailed below, in which we took account of Hungarian fertility rates and the expected employment of young people, this would mean an average annual allowance for a mother of HUF 144 thousand per child. Relative to this amount, more would be granted to those who have more children the level of employment of which is higher than average, and less would be received by those who have fewer children than average the employment of which is lower. (Our calculation presenting the effects on the general government also contains a proposal for the budgetary source of funding for the additional allowance resulting from the introduction of the child-based pension element.)

According to the proposal, the beneficiary of the greater portion of the child-based pension element is the mother. The underlying justification is that women – as they are the ones who bear the brunt of raising children – can pay less to the pension system consisting of pension contributions; therefore, the pension determined for them will be disadvantageous.[12] The system proposed by us is able to rectify this unfavourable situation by means of a work-based approach[13] (as opposed to the existing, nearly impossible to follow egalitarian system).

> Allowance should be allotted to the father if the mother is deceased or it was the father who brought up the child for a greater portion (for example two thirds) of the period until the age of 18.

On average, the allowance would amount to 10–15% of women's old-age income.

It is desirable that the state guarantee the allowance paid by children – as it is guaranteed in the case of pensions based on individual contributions. This would be the guarantee that based on the contributions paid to the generational pension fund parents are sure to receive the pension supplement. The allowances would

Tabli 1

THE VALUE OF THE MOTHER'S CHILD-BASED PENSION ELEMENT ACCORDING TO THE NUMBER OF YEARS WORKED BY THE CHILD UNTIL THEY TURN 37

Years worked	Yllowance/HUF thousand/month per child
4	3,7
5	4,6
6	5,5
7	6,5
8	7,4
9	8,3
10	9,2
11	10,2
12	11,1
13	12,0
14	12,0

Notes: It should be defined how many months of employment would be required for a year to be taken into consideration as working time. It would be advisable to set it somewhere in the region of 10–11 months, with the condition that any shorter time worked can be taken into account in subsequent years. Accordingly, if the child has worked 8 months, no allowance would be due for the given year, but these 8 months would be added to the working time of the next year (for example, if the number of months worked in the next year is once again 8, allowance would be due for that year for the 16 months, and 4 months could be „rolled over" to the next year).

A female child receiving maternity leave payment (i.e. who worked before childbirth) should be taken into account as a working person. It should be considered a whole year if someone with a child not older than 6 years of age works part-time following a period of receiving maternity leave payment.

If the mother has daughters, the value of the generational pension element after them would be relatively speaking lower on account of them raising their children (i.e. the grandchildren). Correction could be applied for this situation as well.

Source: own calculation

be adjusted for inflation, the funds for which would be ensured by the increase in the contribution paid.

SPECIFIC FIGURES

The child-based pension element would provide an average monthly allowance of HUF 12 thousand for the mother who has already reached retirement age, after each child who works 13 years until the age of 37 (the allowance would be HUF 900 for each year worked by the child , i.e. based on an average working time of 13 years it would amount to HUF 12 thousand per child). *Table 1* shows the planned value of the allowance according to the number of years worked by the child.

Of course, in atypical situations it would be possible to apply individual solutions, different from the ones described above.

> For example, if the mother gives birth at the age of 40–42, and her child only starts working at the age of 23 (for example after graduation), upon the mother's retirement the allowance received after the child could be determined with the condition that the final value of the pension supplement would be determined, let's say, after five years – depending on the number of years the child is gainfully employed in the remaining five years.

The source of the allowance paid by children: the pension contribution (currently: 10% + 23.5%) after the (first) HUF 30 thousand (15% of the average earning) of the monthly earnings of those under the age of 37 would be credited to a separated account.

"COMPETITION" BETWEEN THE ALLOWANCE PAID BY CHILDREN AND THE WIDOW'S PENSION

The pension system has to adjust itself to the fact that an increasing number of women are employed. In the current system, the reward for a woman who devotes much time to her family is that when her husband, who earned more money with the help of his wife (as well), dies, the wife receives widow's benefits after her husband. The system also acknowledges the role of the full-time wife by giving a widow's pension as the main allowance to those women who have not been employed (if their husband dies). The child-based pension element would provide nearly the same remuneration for a woman devoting much time to her family. However, this would be done with an allowance granted after children. Namely, the difference between widow's pensions and the child-based pension element would be that the latter would not recompense women who do not bring up children.

The multipliers and parameters applied upon determining widow's pensions should be changed in a way that the new widow's pensions drop to one quarter of today's level. Thus the funding for the child-based pension element may partly come from the reduction of the role of the widow's pension.

WHICH AGE GROUP SHOULD BE USED TO LAUNCH THE PROPOSED SYSTEM?

Series of generations have adjusted (and are still adjusting) their individual life strategies to the existing pension system. According to our proposal, the age limit of 37–38 years is a point at which women could still have a choice and chance to adjust. Namely, (calculating with the new system) a woman under the age of 40 can still decide to:

- have one or even two children,
- slightly postpone devoting herself to her own career and instead spend more time raising her existing children so that they have a better chance of finding a job (sociological surveys suggest that the mother plays a decisive role in the developments of the child's labour market career),
- engage in a partial "competition" between assisting the child in his/her career path and paving the way for the husband's (lifepartner's) career (more of the human resources of the family would be allotted to the new generation).

Analysed from the aspect of compliance between allowances and contributions, compared to the classical systems, the achievement of the proposed system could be the "reinclusion" of family-level compliance (or equivalence in the language of the pension literature) in old-age provisions. Namely, indirectly or through transmissions, a portion of the contribution after the earnings of children would finance their parents' provisions. In terms of content, redistribution would be lower – the net amount of contributions collected on earnings would decline. Perhaps the best term to describe the above would be equivalence "within the family".[14]

SUPPLEMENTARY ELEMENTS

Supplementary elements are also applied in addition to the classical pension systems. From this aspect, the system "covered by children" would perform better. Namely, there are two groups of those who are not provided for in the pension system. One of the groups ends up in this situation because they bring up children, the other because they cannot (or do not even want to) find a job. The problem of the former is solved by the proposals in question (if the raised child is gainfully employed); therefore, in the case of the new systems it is only for the second group that some kind of supplementary public system needs to be found. Presumably, the number of those in this latter group would also decline, as the proposed system would encourage family members to take on expressly legal employment.

Of course, the system containing the proposed child-based pension element will not create extreme disproportions only if it applies supplementary elements as well.

- First of all, one of them is the treatment of the number of children. Depending on the number of children, it would be advisable to apply a principle of slight degression.

> Compared to the child-based pension after the first and second children, the provision of the generational pension after the third child (and subsequent children) could be some 80% of the amount after the first two children.

- Separate treatment is needed in the case of women who are not eligible for a reasonable pension (for example those who do not have a child).

THE EFFECTS OF INTRODUCING THE CHILD-BASED PENSION

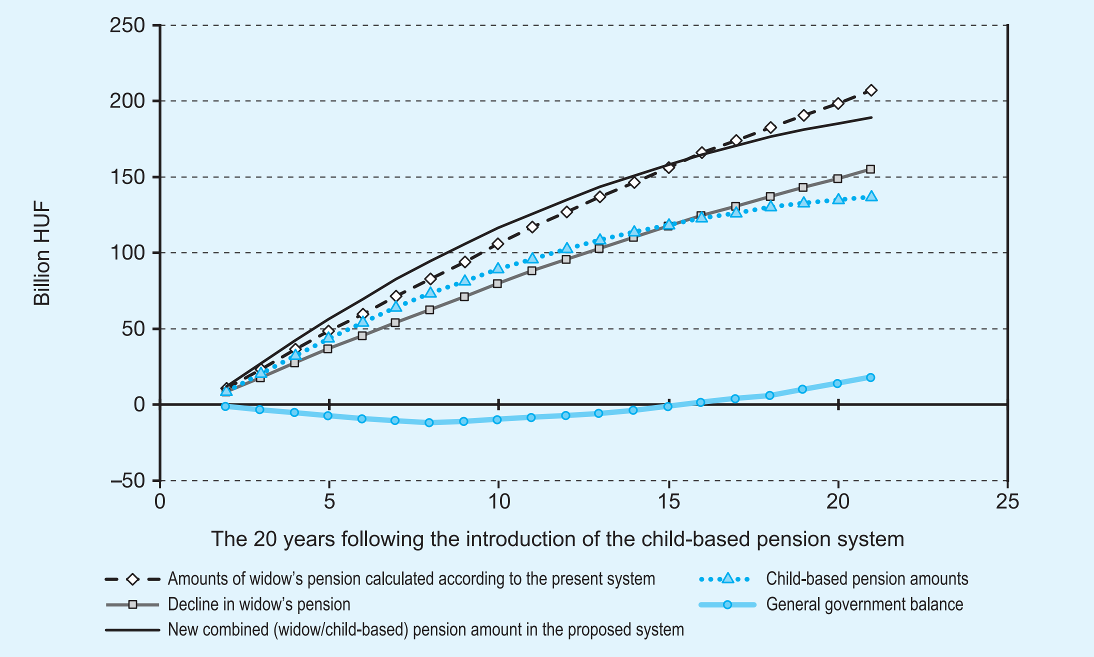
Below is a presentation of the effect of the proposed system on public finances and on the pension amounts of the population concerned. During our impact assessments, we prepared estimates for the expected number of children and their employment based on the demographic data of the population. This is how we established the amount of the annual pension burden on the general government that will have to be paid on account of child-based pensions. We compared this amount to the amount by which widow's pensions would decline according to our calculations/proposal. The difference between the two constitutes the effect on the balance of the general government. According to our calculations, the effect on the balance would be slightly negative in the years following the introduction, and would be positive in the last five years. The deficit caused would amount to approximately HUF 2 billion per year, increasing to HUF 12 billion by the seventh year. Then the deficit would decline, and at the end of the 20th year the general government would close with a surplus of HUF 17 billion. In our chart, this is illustrated by the curve of the effect on the general government balance, which visibly moves in the vicinity of the zero level, initially in the negative, then in the positive domain.

A surplus for the general government means a decline in the pension amount of the population concerned. Considering that our calculations reflect only certain probabilities (developments in fertility, mortality and employment), the relevance of the given calculations is that it shows: with the probabilities foreseeable today, the system proposed by us does not have a significant impact on public finances, and the amount of pension to be paid can be "maintained" from the aspect of the population as well.

In addition to the effect on the general government balance, *Chart 1* also depicts the processes that explain this balance effect – including the expected developments in widow's pensions if the existing system remains. This is followed by a presentation of the reduction in the widow's pension proposed by us. This is compared to the amounts that would be granted as an additional allowance, as child-based pension to the persons thus entitled (according to the number of children and their employment). Special emphasis is laid upon how the population would eventually be affected by the change (the curve of the new, combined pension amount in the chart), i.e. how these two pension elements (the widow's pension and the pension provided on the basis of employed children's contributions) change together.

Chart 1

OFFICE AND THE CENTRAL ADMINISTRATION OF NATIONAL PENSION INSURANCE



Source: own calculation and estimate based on data of the Central Statistical Office and the Central Administration of National Pension Insurance

The chart clearly shows that the curve of the pensions paid together following the introduction of the child-based pension system (new, combined pension amount) closely mirrors the curve of the amount of widow's pension projected according to the present system. Disbursements in the new system would roughly correspond to the disbursements anticipated in the present system. Accordingly, in line with the funding forecast financing of the child-based pension is viable.

It can also be seen that in the years following the introduction the population would receive slightly more in the new system (widow's pensions would decline to a lesser extent than the increase in the child-based pension), then, after some time this effect is rather negative. Adding up the annual surpluses and losses, the population's pension balance would close with a surplus.

However, it was not taken into account in these calculations that as a result of the demog-raphic "message" of the new pension system, willingness to have children as well as the employment of children may also increase. All this would have a favourable impact on GDP growth and employment and, through that, on the equilibrium of the pension system as well.

The main figures of our system are as follows.

General government expenditure due to the child-based pension element is expected to be around HUF 138 billion. Savings as a result of the decline in widow's pensions are expected to amount to some HUF 155 billion. Accordingly, the balance for the 20th year is already positive (as is the case for some years before that as well). However, the deficits and surpluses of the 20 years together represent a negative general government balance, albeit to an almost negligible extent: HUF 2.8 billion as an annual average. (And it has not yet been taken into account here that the expected

Table 2

ASSESSMENT OF THE IMPACT OF THE CHILD-BASED PENSION ELEMENT ON PUBLIC FINANCES ASSUMING VARIOUS PARAMETERS

	Fertility rate	Employment (25–39 years of age), %	Proportion of those eligible for widow's pension, %	Balance summed up for 20 years, HUF billion	Balance calculated for the last year (cumulative value), HUF billion
Basic version	1,32	75	90	–56	17
Fewer persons eligible for widow's pension	1,32	68	80	–82	13
Lower average widow's pension	1,32	75	80	–145	9
Higher average widow's pension	1,32	75	80	34	23
Fewe children born	1,18	75	80	136	32
More children born	1,40	75	80	–165	9
More children born, overall impact, emplozment increases					59

Source: own calculation and estimate based on data of the Central Statistical Office and the Central Administration of National Pension Insurance

increase in the number of births would definitely add to the revenues of the state.)

From the population's perspective the developments in deficits and surpluses constitute a mirror image of those of the general government. Initially they may realise a pension surplus; subsequently, the end of the period will be characterised by a deficit. Due to the insignificant balance effects vis-à-vis the general government and the population, our model producing the above results is referred to as the basic version.

VULNERABILITY ANALYSIS

Compared to the above described basic version, we also carried out calculations on how the balance of the impact on public finances would change if the number of those entitled to a widow's pension would change even more unfavourably than in the basic version (more widows would lose their pension eligibility due to their dependents' even less favourable than assumed employment). We also took into account that relative to the present amounts the size of widow's pensions may decrease, as a result of the decline in the proportion of those who receive a widow's pension by their own right. We also took account of two versions for fertility: fertility declines to a level below the present one or, on the contrary, exceeds the present level (precisely as a result of the child-based pension element).

Table 2 shows how the changes in the values of individual parameters impact the general government balance.

Main results

It will entail no material consequences compared to our basic model if fewer widows are eligible for widow's pension. If employment is less favourable than assumed, the number of those eligible for widow's pension will be lower, but the number of those entitled to child-based pensions will also probably be lower. Namely, in this case it can be assumed that their children's level of employment will also be low, and therefore expenditures for child-based pensions will also decline.

Our table shows that with the given parameters the "most favourable" scenario for the general government is seemingly if few children are born (the calculated balance surplus is the highest here: HUF 32 billion). By contrast, it is the most unfavourable if more children are born; then the balance surplus is the lowest.

However, this model does not take into account that the economy is not indifferent to demographic changes. An increase in the number of children and strong motivation to be employed facilitate economic growth, and improve the balance of the general government and within that the balance of the pension system.

The last line in our table also takes into account the indirect effects. Due to the increase in employment, the surplus of the general government is HUF 59 billion in the last year, i.e. higher than in any other version. (Over the long term, the amount of revenues may increase by as much as HUF 100–120 billion annually due to the higher number of those who work.)

THE MODE OF TAKING DEMOGRAPHIC ASPECTS INTO ACCOUNT IN OUR MODEL

In a previous part of this article we raised questions on the basis of the answers to which the systems that intend to take account of demographic aspects operate. Here is a summary of how the model outlined by us addresses the correlations raised.

- What percentage of the total pension should depend on demographic factors?

In the proposed model, around 8–10% of pensions depend on demographic factors (as opposed to the general figure of 1–2%). Accordingly, it places much greater emphasis on demographic aspects.

- Should regulation continue to retain an age-group approach (comparing generations – holding them "responsible" vis-à-vis one another), or "descend" to the level of the individual or family (more specifically, should it take into account the number of children brought up by the given person)?

Our model makes a portion of the pension dependent on family reproduction, i.e. it partly returns the provision for the conditions of old-age security from the generational to family level.

- Should the allowance depend on the number of working children or on the earnings of the child as well?

Our model also makes a part of old-age provision dependent on children's productive activity (employment), the message of which is that productive children provide the coverage for their parents' pension.

- Should the mother receive the generational pension or the father as well?

In our model, it is mainly the mother who receives the child-based pension, taking account of the social context of raising children in Hungary, i.e. the fact that the burden is primarily on the mother.

- Should it be taken into account whether the child is gainfully employed and/or whether (s)he is raising any (grand)children?

In our proposal, the definite answer to this question is that the pension system should take into account the employment of children, as this is the only way to produce the real economy coverage for the virtual pension.

- What is the source of the allowance?

The source of the child-based pension element is the direct restructuring of the widow's pension system and the more emphatic acknowledgement of raising children – than of the spousal(like) relationship – in the pension system.

The other more important – indirect – source: an increase in the number of children and the motivation to be employed (and pay taxes) could result in considerable GDP growth as high as 7–8% from the present 3–4%. Consequently, general government revenues could also increase.

- Should it operate as a pay-as-you-go or as a pay-as-you-earn system?

Our model assumes a pay-as-you-go system, as it is easier to incorporate it into the existing pension system.

- How is it advisable to operate the proposed system? As a part of the existing systems or in parallel with them?

Our proposal would complement the present system with a child-based element. The underlying consideration is that it could as well be introduced immediately[15] (with an inductive system) and could solve the adjustment to the new demographic aspects within the system more smoothly and with fewer significant shocks within the system.

AND THE RESULT OBTAINED – CHANGE IN THE PENSION VALUE SYSTEM: "PENSION ON PAPER" VS. CHILD-BASED PENSION

Pension debates and pension systems concentrate on the generation of individual contribution based pension claims and the ways of handling them. However, they ignore that the productive generation produces its pension in another way as well, namely, by raising the generation that will perform productive work exactly at the time when the earlier generation stops working. No matter in what system the pension claims are accounted for, their actual coverage is provided by none other than the coming active generation itself. This is the only way the "pension on paper" can turn into actual consumption by pensioners, the means of subsistence of the generation that brings up the grandchildren.

The so-called child-based pension system would not only be financially fairer, but would also be more efficient from a demographical point of view. Although the total amount of pension contributions would remain unchanged, a considerable portion within that would practically remain within the family, i.e. it would no longer be a deprivation in terms of content.

With the fact that the present pension system does not, or barely, take(s) child-raising into account in pension-age subsistence, it contributes considerably to demographic distortion, i.e. to the opinion that "it is not worth" having children. This message of the pension system needs urgently to be terminated. This is what we intended to contribute to with a more detailed presentation of our own model.

ANNEX
PARAMETERS TAKEN INTO ACCOUNT IN THE IMPACT ANALYSIS

The parameters of the impact analysis presented have been set considering the following (this is our basic version, compared to which other versions are also described later).

The number of women over the age of 65

The data of the age pyramid were taken into account for women born between 1974 and

1994. We assumed that 5% of the present population will die before reaching the age of 65. According to these calculations, 18–20 years later the population of females born after 1974 will be 900–950 thousand people.

The number of women receiving widow's pensions

The number of widows for the 20 years following introduction was deduced from the number of women above the age of 65 years calculated as described above.

In a breakdown by age group (e.g. 44% of 65–70 year olds, but 68% of 75–80 year olds), we assumed that the proportion of widows among women will be similar to the one at present. Thus we can specify the number of widows for each year.

We assumed that 90% of widows will receive a widow's pension. Accordingly, we assume that 10% will not receive a widow's pension. This is three to four times the current rate. The underlying reason is that a considerable increase is expected in the number of those whose husbands (life-companions) will not be eligible for pensions (because they have not worked 20 years by the age of 65), thus no widow's pension will be due following the death of the husband.

In the final analysis – with this calculation – by the end of the 20th year 500–550 thousand women would receive widow's pensions according to the present conditions.

An amount of HUF 390 thousand was taken into account as the annual value of a widow's pension. (This amount was calculated based on the average widow's pension in 2009 (HUF 32 thousand per month), multiplied by the average pension index of the last two years.)

As one tenth of widows are not expected to receive a widow's pension, the present expenditure item of HUF 270 billion will decline to HUF 207 billion.

If, according to the proposal, its value was reduced to one quarter of the present figure, it would result in a HUF 155 billion fall in expenditure (from the expenditure of HUF 207 billion).

Number of children

Taking account of the average fertility rate of 1.31 and assuming an average rate of 75% employment in the case of the growing children, the result is that pension-age women born after 1974 may receive an average of HUF 143 thousand per year in the above described system. (The starting amount is HUF 12 thousand/child/month. Although it is increased by the number of children, employment declined, thus practically the average child-based pension corresponds to the amount after one child on average.) Accordingly, with this calculation, expenditures for child-based pensions would amount to approximately HUF 125–135 billion by the end of the 20th year.

Interpretation of employment

Only the employment of those between the ages of 25–45 counts in our model. The employment of those over the age of 50 does not count because by then the mother's child-based pension has long been fixed. The employment of those aged between the ages of 18 and 23 does not count because until the mother turns 65 it is sufficient to have worked 12 years; the child can do so even if he/she starts working at the age of 25 (at which point the mother of an average child is 52 years old).

From all this it follows that in terms of expected employment the proposed system has set more easily attainable parameters for those with lower education (thus practically compensating their lower level of employment). While graduates have 13–15 years to work 12 years for their old-age mothers to receive the total value of the child-based pension, someone who has finished eight years of schooling and is able to work at the age of 16 has to work 12 years out of 20–22 years to provide for the mother's pension.

In addition, maternity leave payment also counts as employment. The number of those receiving maternity leave payment is 95 thousand. Presumably, the overwhelming majority of them are above the age of 25 (the average age of mothers at the time of the first childbirth is 26.5 years).

As far as the child-based pension is concerned, 92% employment is equivalent to 100% (because once the child has worked 12 years out of 13, the mother receives the full child-based pension). Therefore, for our purposes, the present statistical value of 69% for the employment of those between the ages of 25 and 45 corresponds to a value of 75%.

Changed parameters of vulnerability analyses

Lower employment

Our specific parameters: fewer women – a mere 80% of widows (not 90%) – receive a widow's pension. According to the modelling, the financial balance does not change significantly even in the case of this 80% proportion. Namely, if the number of those ineligible to receive a pension due to low employment is increased, the assumed 75% proportion of their children's employment also has to be reduced (Table 2 shows that we reduced it to 68%). It means that the amount of the child-based pension will also be lower.

Change in the average value of pensions

The value of pensions is mostly influenced by the proportion of those who receive widow's pension by their own right (not as a supplement). This proportion is currently 17%. If their proportion deviates from it by 5 percentage points in any direction, through the reduction of widow's pensions to one quarter, the "saving" attainable by the state is increased/reduced by an annual average amount of HUF 4.5 billion. Its impact on the general government balance would change by the same amount.

Changes to fertility parameters

First we reduced fertility to 1.18, then increased it to 1.4 in the other version.

In the event that even fewer children are born than at present, a lower amount of child-based pension has to be paid, which results in an improvement in the general government balance. However, if other factors are also taken account of, the situation is just the opposite of the above, as in this case fewer people work, which causes a significant decline in the employment-related revenues of the state.

Accordingly, if the fertility rate is 1.18, the number of children born is fewer by 9 thousand every year, and by the end of the 20th year the relevant population will be lower by 180 thousand people, i.e. there will be 90 thousand fewer people working. Consequently, the employment-related revenues of the state will decline by HUF 100–120 billion annually. Developments opposite to the above can be experienced if the number of children grows.

Notes

1 The relationship between fertility and pension systems as an interrelated system of human capital investment is discussed in several papers. For example, Cremer, H. et al., 2009.

2 The detailed criticism of pension systems becoming independent of raising children and the acknowledgement of child-raising as a form of pension investment have been urged for decades in several papers by Alessandro Cigno. For example, Cigno, A., 2009.

3 The adjustment of the family structure to the economic structure and the resulting significant change in intergenerational relations is presented via the example of England by Hareven, T.K. (1982).

4 The excellent work by László Asztalos (2009) is mentioned here; in its concept it retailors the whole financial system, and, as he writes, he constructed a financial system supportive of families, in which generational relations are covered by strict financial ones.

5 By 2025, in the countries of the EU-15 the number of those older than 65 will exceed the number of those aged between 3 and 24 years. See EPC/ECFIN Economic Policy Committee, 2003.

6 A few other methods may be mentioned because of their peculiarities:
In Sweden, until the child turns 4 years old the state pays the pension contribution instead of the parent, and the parent is eligible to receive a pension even if the parent does not work.
In France, the so-called basic pension (which otherwise accounts for half of the pension on average) of both parents who bring up at least three children is increased by 10%.
In Portugal, if a mother whose child is not older than 12 has a part-time job, three years of the period spent in part-time employment are taken into account as if she had worked full time.

7 Source: OECD, 2009 and OECD, 2011.

8 See the classical wording of the choice between "child or car", which should be reworded, as giving up on having a car is required not only when deciding to have a child. Another car is sacrificed if parents undertake to pay for the child's higher education (even in the case of the so-called "free" higher education system). In her presentation entitled *Human career and job-taking by the young*, Szilvia Szegő called attention to the considerable increase in investments by parents resulting from the changes in the career of the young. See Szegő, Sz., 2006a and Szegő, Sz., 2006b, which was delivered at the conference entitled *The Lisbon process in Hungary*. Szeged, 13–14 November 2006.

9 The human career model of Mária Augusztinovics is a single-generation model in the sense that it assumes that a generation produces its own child-raising costs and old-age provisions, i.e. that it is self-supporting. Consequently, "only" the reallocation of funds between the productive and non-productive periods has to be solved by means of the financial system. She developed her pension model on this basis and carried out calculations with regard to the fact that most of the population's budgetary relations serve to financing the generational career. See Augusztinovics, M., 1996.

10 The proposal drawn up can only partly be considered an individual product. It could also be declared the result of joint work carried out with András Giday.

11 Redistribution in the direction of the woman within a family or living together as a couple is significant late in life as well. An OECD analysis that scrutinised nine countries shows that less than half

of the expendable income of women over the age of 64 living together with their husbands comes from their own income; 20% is from their partner and another 20% comes from the income stemming from the economies of scale of managing a household together with their spouse. (Expendable income is to be understood in a broader sense; for example, the use of one's own flat is also a form of income.) See OECD, 2001, p. 31.

12 The disadvantages caused by raising children are examined by a community of authors in several countries through the presentation of the consequences appearing in mothers' career earnings. See Heather, J., 1992.

13 János Réti also calls attention to the difference between the life earnings of women and men and to the resulting lower pension assets that women can accumulate in their active age. See Réti, J., 2000.

14 Therefore, it would be desirable for insurance theories discussing global, individual etc. types of equivalence to familiarise themselves with the category of "family equivalence" as a new concept (or at least one that has been rarely used to date).

15 See the relevant concept and calculations of András Giday (2011).

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