A brief commentary on József Banyár's OLG-paper*

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In his recently published paper *Banyár (2014)* reinterprets, through the modelling of childhood, the seminal consumption-loan paper of *Samuelson (1958)* which led to the evolution of the overlapping generations (OLG) model. In my comments, I touch upon four issues. First, I point out that what Banyár presents as his own model – the OLG model extended to include childhood – already appeared in the papers of *Gale (1973)* and *Augusztinovics (1983; 1992).* Secondly, based on the idea of *Péter Mihályi,* I describe a simpler model which puts the pension issue in parentheses and evens out the prevailing child-rearing expenses among families. Once we introduce differences in income, however, we find ourselves facing the problem of equalisation. Thirdly, it may well be inopportune wording only, but I must object to being credited with an excessive role in promoting the approach that neglects child-rearing in the Hungarian literature *(Banyár, 2014:175)*. Finally, while I agree that *Samuelson (1958)* painted an excessively favourable picture of the pay-as-you-go scheme relative to funded pension systems, taking the opposite position would be overly simplicistic as well.

1 Child-rearing and pension in the OLG model

Banyár (2014) provides a coherent description of the 3-generation model of *Samuelson (1958)* (young, employed persons, older employed persons, retired persons), to which he adds a fourth category: children. In this generalised model, the market and non-market costs associated with raising a child are explicitly present. Breaking down the model into families with children and childless households, one may argue, provided that certain non-negligible dimensions are neglected, that households with children should receive higher pensions or pay less contribution than their childless peers.

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Even though Banyár refers to the non-mathematical paper of *Augusztinovics (1993)* as a forerunner, he fails to mention that the model he calls his own was published in *Gale (1974)* and *Augusztinovics (1983; 1992)*, albeit without the application of the utility function. Compared to these models, the only novelty in the model proposed by *Banyár (2014)* is the fact that it makes the fertility decision contingent upon the pension scheme.

2 Taxation of the childless and its problems

Banyár (2014) himself mentions that in modern pension systems the state assumes a considerable portion of the costs associated with child-rearing. For some reason, however, he refrains from wrapping up the entire issue accordingly, ignoring the pension system altogether. What should be done is simply to introduce transfers in the child-rearing period (ages 20 to 40 in *Banyár)* with a view to equalising the per capita costs of childless couples and those with children. For instance, for the sake of simplicity, let us examine a stationary population where half of the families have no children, and the other half have 4 children. Let us assume that both types of households earn 6 units. In a system with no transfers the per capita consumption of the childless family will be 3 units, and that of child-raising couples will be 1 unit. (At this level of abstraction the decreasing unit consumption of children is negligible). In order to create equilibrium, the state should impose a special tax on childless households, and transfer the proceeds to families with children. As a result of the transfer, the per capita consumption of the two family types will be identical, 1.5 in each case. Thus the tax is 3, and the tax rate is 50 per cent.

At this point, however, we must deal with another problem; namely, where the incomes of the families are also different. Do we want a tax regime that preserves the differences between high-earners and low-earners, but equalises the differences between the numbers of children? To continue our example, let us assume that there are two additional family types: families with 0 or 4 children, with earnings triple the incomes of the families above; i.e. both families earn 18 units. In this case, in a system with no transfers the per capita consumption of the rich childless family will be 9 units, and that of child-raising couples will be 3 units. The level of the equalising tax has also tripled, amounting to 9 units.

We now have to face the problem of childcare support and income redistribution. We take away 3 units from a low-earning, childless family, while allocating 9 units to a high-earner family with several children. Is such a procedure consistent with society's sense of justice? The example above is intended to demonstrate the insurmountable problems that would be generated by the total – or even an aggressive – equalisation of incomes based on the number of children.

3 The role of child-rearing and pension in my writings

Although he makes references to my latest article *(Simonovits, 2014)*, a critical analysis of the interconnection between endogenous fertility and the pension system, *Banyár (2014)* unwittingly condemns my previous writing, *Simonovits (2003)*. In his view, my book – consistent with Samuelson's approach – neglects the relationship between child-rearing and the pension system. As the book criticised was intended to be an introduction to the literature on pension, it is true that a relatively small amount of attention was devoted to the relationship between child-rearing and pension. The topic, however, was far from being dismissed, which can be best proved by listing a few chapters and sub-chapters from the table of contents.

Chapter 1: *Lifecycle models*, where the period of active years is 20 to 60, while that of consumption is 0 to 100. Chapter 7: *Demographic developments*, where fertility and mortality obviously play a key role. Chapter 11: *Optimal consumption path*, where, in line with the authors referred to in Point 1, childhood consumption has a crucial role. Chapter 13: *The closed model of overlapping generations* (see *Molnár–Simonovits, 1996),* where one of the most important issues examined is once again the consumption of children funded by loans in households lacking income.

Moreover, in my article *Simonovits (2007)*, I also criticized *Razin et al. (2002)* precisely because the authors surreptitiously lumped children and old people together, which led them to completely false results: in their findings, the aging of the population reduces the size of the welfare state. In my paper *Simonovits (2012)*, for the first time in the Hungarian literature, I analyse an OLG model in which the decline in fertility and the increase in life expectancy at birth impose severe burdens on the public pension system. At the same time, I also demonstrate that the difficulties are mitigated by declining household consumption amid decreasing family size and rising bequests.

4 Which one is better: a pay-as-you-go or a funded pension system?

Banyár (2014) makes interesting historical observations about these two main pension systems and the relationship between them. Starting from the findings of *Samuelson (1958)* and *Aaron (1966)*, he asserts that, in the case of a stable economy and a stable population, the annual internal rate of return of the pay-as-you-go system will equal the

sum of the annual growth rate of the population and real wages. (However, if the unit of analysis is decades or quarters of a century instead of years – for example, it is 20 years in *Banyár*'s paper – the factors are to be multiplied).

I fully agree with *Banyár* that it would be a gross simplification to assert that the pay-as-you-go system will increase welfare compared to the funded systems if the internal rate of return exceeds the real interest rate. On the one hand, nowadays, the population cannot be considered stable (but aging) and it is not only true for developed countries but also for China; on the other hand, it is unclear what real yield really means. (For instance, if the UK private pension system phased out annuitisation in 2013, what kind of real interest rates will people, left to their own means, face when purchasing indexed annuities)? *Banyár* correctly described the process that led to the collapse of the private pension systems of the mid-20th century, and I tend to agree that the emerging public pension systems were, occasionally, too generous.

However, I have doubts about how wise it would be to eliminate the existing earnings-related European retirement systems or reduce them to a basic state pension. Finally, I wish to point out that it is extremely dangerous that Hungarian pension experts are only concerned about the admittedly insufficient domestic fertility, while neglecting the opportunities offered by a potential restoration of the flexible retirement age, an improvement in market-based employment bolstered by a good public education system, and the encouragement of immigration.

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