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Pensions in a shrinking economy: a comment on Kuné

n. 624 – Ottobre 2011

Abstract - In a contribution to *Pensions: An International Journal*, Prof. Jan Kuné discusses whether a fully funded (FF) pension scheme can cope with a demographic shock better than a pay-as-you-go (PAYG) system. He makes ample use of my own contributions on this issue but ignores my criticism of the neoclassical interpretation of FF pension schemes and especially of the claim that an FF scheme is superior to PAYG in this and other respects. The purpose of this note is to stimulate some response, from Prof. Kuné or others, to my critique of the neoclassical interpretation. The policy implications of this discussion for pension reforms are evident.

JEL Classification: E11, G23, H55

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Introduction

In a recent article to *Pensions: An International Journal*, Prof. Kuné[1] (2011) discusses the important question of whether a fully funded (FF) pension scheme is better able to cope with a demographic shock than a pay-as-you-go (PAYG) system. The author makes ample use of arguments and supporting simulations that I published a few years ago[2,3] (Cesaratto 2005, 2007). My simulations in turn developed some examples provided by Auerbach and Kotlikoff.[4] My purpose was to discuss the widely held view that FF and PAYG schemes are ultimately on a par when faced with a demographic shock. In this connection, I developed both a detailed reconstruction of the neoclassical claim that the former are more robust than the latter in theory and a critique of this view. Kuné's use of my results is like *Hamlet* without the prince, in that he takes up the first part but ignores the second, which constitutes my really original contribution to the debate and is, as such, something I would have expected to arouse some response. While I am pleased that my reconstruction of the neoclassical thesis has been found helpful and taken up in discussion, the purpose of this note is to stimulate some attempt by Prof. Kuné or others to refute my critique of the neoclassical interpretation. The implications for policy are plain to see. Are FF schemes superior to PAYG or not?

1. FF versus PAYG schemes and a demographic shock

The main purpose of Cesaratto[2,3] was to resolve the clash between two views of FF schemes. One is that FF and PAYG schemes would ultimately run up against the same problems in the event of a demographic shock. Economists of otherwise different persuasions hold this 'equivalence view' (EV), which is clearly expressed by two leading Italian Sraffian economists: [5]

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[1] Kuné, J.B. (2011) Pensions in a shrinking economy. *Pensions: An International Journal* 16(1): 21–32

[2] Cesaratto, S. (2005) *Pension Reform and Economic Theory: A Non-Orthodox Analysis*. Cheltenham: Edward Elgar.

[3] Cesaratto, S. (2007) Are PAYG and FF Pension Schemes Equivalent Systems? Macroeconomic Considerations in the Light of Alternative Economic Theories. *Review of Political Economy* 19(4): 449–73.

[4] Auerbach, A.J. and Kotlikoff, L.J. (1995) *Macroeconomics: An Integrated Approach*. Cincinnati: South Western College Publishing.

[5] De Vivo, G. and Pivetti, M. (2004) Contro l'impoverimento degli anziani. *Il manifesto*, 17 February. Respected authors who have expressed similar opinions include the welfare economist Nicholas Barr (2000) Reforming Pensions: Myths, Truths, and Policy Choices, *IMF Working*

> In the political discussion on pension reforms [...] the fact is often overlooked that, whatever pension system is in place, the substance of the question consists of the transfer of part of current real income from those who have produced it to the old. [...] Depending on the ruling scheme (private or public, fully-funded or PAYG, defined benefit or defined contribution) the financial mechanism will change according to which such transfer is operated. [...] However, given aggregate pension obligations and output, the chosen transfer method is by no means relevant to the real sustainability and no change in this method [...] is able to enhance it.

The other is represented by the public finance economist Richard Musgrave,[6] whose criticism of the EV suggests that the *differentia specifica* between FF and PAYG schemes lies in the existence of real capital-stock reserves in the former:

> Various objections have been raised against the reserve [FF] approach, some more justified than others. The reserve approach, it has been argued, is a fiction. Once the system is underway, the withdrawal by the older generation comes to be matched by contributions from the younger. This being the case, the system simply involves a transfer from the latter to the former, reducing it to a pay-as-you-go approach. This conclusion is incorrect because it overlooks the fact that the reserve accumulation of the first generation has added to the capital stock, so that its withdrawal will not reduce the level of income enjoyed by the next.

This can be called the non-equivalence view (NEV).

I showed in my contributions that the NEV is based on neoclassical capital theory and hence valid as long as the theory is. I argued with reference to the result of the famous capital theory controversy that neoclassical capital theory is irremediably flawed and that therefore so is the NEV, albeit not for the ‘common sense’ reasons put forward by the supporters of the EV.

Papers, no. 139, and the radical Keynesian Robert Eisner (1998) Save Social Security from its Saviors. *Journal of Post Keynesian Economics*, 21(1): 77–92.

[6] Musgrave, R.A. (1981) A reappraisal of financing social security, in F. Skidmore (ed.) *Social Security Financing*. Cambridge, MA: MIT Press, p. 98.

2. The birth, maturity and old age of FF schemes and capital theory

The functioning of a *fully-operational* (or *mature*) FF scheme is described verbally and through some simulations by Cesaratto[2,3] and, with marginal modifications, by Kuné[1].[7] In short, it is shown that in a stationary economy an FF scheme works like a sort of relay race between generations with real capital reserves as the baton. Each generation of young workers buys the capital stock that the older ones possess through pension funds (PFs) in order to consume, when old, the principal (which is sold to the next young generation) and the interest revenues. According to the neoclassical view, the capital stock was set up at the *inception* of the FF scheme through an *act of thrift* by a first generation of young savers. This recalls the neoclassical conception of capital as a fund of forgone consumption. In a fully fledged FF scheme, the act of thrift is repeated by each new generation, leaving the capital stock intact. The neoclassical view of the *birth* of an FF scheme is not without difficulties, some related to capital theory and some not, as described by Cesaratto.[8]

We are concerned here with the *old age*, so to speak, of an FF scheme, when it is faced with a demographic shock regarding fertility, for example, and the population trend switches from

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[7] Cesaratto,[2] pp.93-5; Cesaratto,[3] pp.451-53; Kuné,[1] pp.24-5.

[8] See: Cesaratto[2], chapter 4; Cesaratto, S. (2006) Transition to fully funded pension schemes: a non-orthodox criticism. *Cambridge Journal of Economics* 30(1): 33–48; Cesaratto S. (2011) The Macroeconomics of the Pension Fund Reform and the Case of the TFR Reform in Italy. *Intervention – European Journal of Economics and Economic Policies* 8(1): 69–89. The steps of my argument in this connection can be summarized as follows. (a) According to neoclassical theory, the birth of an FF scheme means that households save more and that this net saving is transformed into real capital accumulation, understood in financial terms as reserves held by pension funds (PFs). (b) Policy makers cannot, however, oblige households to save more, as is widely recognised by the most acute experts on pension (cf. Cesaratto[2], chapter 3, Cesaratto[3], Orszag, P.R. and J.E. Stiglitz (2001) Rethinking Pension Reform: Ten Myths about Social Security Systems. In: P.R. Orszag and J.E. Stiglitz *New Ideas about Old Age Security*. World Bank, Washington DC). (c) Moreover, even if households do save more, the results of the capital theory controversy confirm the Keynesian view of investment as independent of saving. FF schemes do of course exist. My view is that their *birth* is explained more satisfactorily by a genuine Keynesian approach in which investment determines saving in both the short and the long run. The neoclassical view of FF schemes in an open economy is critically examined in Cesaratto[2], chapter 7, and Cesaratto, S. (2006) The Saving-Investment Nexus in the Debate on Pension Reforms. In: N. Salvadori (ed.), *Economic Growth and Distribution. On the Nature and Causes of the Wealth of Nations*. Cheltenham: Edward Elgar.

growth to decline.[9] In this case, the above-mentioned EV argues that the older generation may find it difficult to sell the real capital reserves to the shrinking new generation and that the living standards of the old will therefore decrease, a result differing little from the conventional description of the effects of a demographic shock on a PAYG scheme. Neoclassical supporters of the NEV present two counterarguments.

2.1. "Eating-up" the real capital reserves

The first objection hinges on the idea that the real capital reserves can be reconverted into consumption goods, at least in theory. As Kuné[1] (p. 23) puts it, 'As far as the allowable rate of capital stock reduction does not exceed capital depreciation, redundant capital can be disengaged *rather easily* by diminishing or halting gross investment and, hence, can easily be "turned back into consumption".' The last words are taken, without reference, from a quotation I provided from Pierangelo Garegnani,[10] Piero Sraffa's star pupil and the leading figure, together with Ludovico Pasinetti, on the UK side in the Cambridge controversy on capital theory. The clarity of the whole quotation makes it well worth giving in full here:

> Beneath the variety and, at times, the vagueness of the indications given in this respect by the marginalist theorists, there lies a common idea. The capital goods, and hence the quantity of capital they represent, result from investment; since investment is seen as the demand for savings, 'capital' emerges as something which is homogeneous with saving. Its natural unit is therefore the same as we would use for saving, i.e. some composite unit of consumption goods capable of measuring the subjective satisfactions from which (according to these theorists) consumers abstain when they save. 'Capital' thus appears as past savings, which are, so to speak, 'incorporated' in the capital goods, existing at a given instant of time. As a result of the productive consumption of those goods, these past savings will periodically re-emerge in a 'free' form and can

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[9] I examine the demographic issues in a non-neoclassical perspective in which full employment is not assumed in: Cesaratto[2], chapter 8, and Cesaratto, S. (2006), Pensions and Distribution in an Ageing Society: a Non-conventional View. In: E. Hein, A. Heise, A. Truger (eds.), *Wages, Employment, Distribution and Growth*, Macmillan-Palgrave. This is another difference with respect to Prof. Kuné, who discusses 'demographic shocks' in full employment economies.

[10] Garegnani, P. (1983) Notes on consumption, investment and effective demand. In: J. Eatwell and M. Milgate (eds.) *Keynes's Economics and the Theory of Value and Distribution*. London: Duckworth, p.33.

be re-incorporated in capital goods of the same or of different kinds; alternatively, they can be turned back into consumption.

Even if the marginalist conception of capital is provisionally accepted, what works smoothly in theory will not necessarily work in practice. For a start, capital stock can only be converted back into consumption goods if it is decided not to replace some of the capital goods that have worn out in the course of time. Disinvestment is therefore only possible for the part of the capital stock that becomes ‘free’, as Wicksell puts it, in each period and is available as such to be reinvested in the same or other capital goods or ‘turned back into consumption’ by using the corresponding depreciation funds. In addition, smooth adjustment requires a significant degree of foresight and coordination on the part of various institutions, which would probably be lacking in a realistic economy. In this respect, Garegnani (1983, p. 44) points out on the basis of an observation by Wicksell[11] that the use of ‘free’ or ‘liquid’ capital to obtain consumption instead of capital goods must be foreseen by the producers of both kinds of goods, who are required to convert the resources released from the capital goods sector to the production of additional consumption goods. These complications seem to lie at the root of the fears that the retirement of the baby-boom generation will spawn a stock market slump. This peril of an ‘asset market meltdown’ has become an object of academic research.[12]

Be that as it may, the “eating-up capital” component of the adjustment is favourable to the NEV, at least in theory. In practice, however, supporters of the EV are left with some doubts.

2.2. Factors’ substitutability

As shown in my simulations taken up by Kuné, neoclassical factor substitutability is the second component of the presumed adjustment of an FF scheme to a demographic shock. In these simulations, the stationary economy is subjected to a fertility shock that causes a single reduction in the labour stock. As a result, the capital stock initially becomes abundant with respect to the diminished set of workers and is offered at a lower interest rate, which leads to a temporary rise in the demand for capital – compensating the decreased demand expressed by the less numerous younger generation – and enables the older generation to get rid of its real capital reserves. The economy then slowly returns to its secular state. Partly by ‘eating up’ the real reserves and partly

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[11] Wicksell, K. (1934) *Lectures on Political Economy*. Vols I–II, London: Routledge & Kegan Paul, pp. 192-93,

[12] Poterba, J.M. (2004) Population aging and financial markets, symposium global demographic change: economic impacts and policy challenges. Federal Reserve Bank of Kansas City (mimeo).

thanks to the neoclassical factor substitution mechanism, the older generation can therefore preserve its expected standard of living, thus bearing out the NEV.

The objection to the second mechanism derives from the capital theory controversy,[13] the outcome of which revealed that, outside the naive hypothesis of a corn economy, the direction of factor substitution is not necessarily as predicted by neoclassical theory. A drop in the interest rate, for example, might be followed by the adoption of less (and not more) capital-intensive techniques. This means that if the interest rate were to fall, the amount of capital goods demanded by entrepreneurs would be lower in value terms rather than higher, as postulated by conventional theory.[14]

The argument developed in the previous two sections suggests that the adaptation of the economy to a demographic shock and the fulfilment of the promises of FF schemes to return to the old what they actually accumulated when young take place only under hypothetical and restrictive conditions. The adaptation of the capital stock runs into difficulties due to its lack of flexibility in the short run and requires a high degree of foresight and coordination among heterogeneous agents.

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[13] The capital theory controversy, initiated by Piero Sraffa's *Production of Commodities by Means of Commodities. Prelude to a Critique of Economic Theory* (Cambridge: Cambridge University Press), blew up over the suggestion that neoclassical capital theory is vitiated by logical faults. The next few years saw heated debate between a group of mainly Italian economists associated with Cambridge (UK) and top American economists located at the MIT in Cambridge (US) led by Paul Samuelson, the doyen of neoclassical economics. The debate became known as the controversy between the two Cambridges. While Samuelson famously admitted defeat in his 'Summing Up' of 1966 (*Quarterly Journal of Economics*, vol. 80, pp. 568–83), he also minimised the importance of what are actually deep logical flaws. Conventional macroeconomists and 'experts' on pensions have thus continued to employ the idea of capital as a single magnitude despite a vague awareness of the problems surrounding it. They probably hope and trust that other versions of neoclassical theory – particularly the neo-Walrasian general equilibrium theories, where capital does not appear as a single 'value' magnitude – are free of those shortcomings. These Walrasian approaches appear, however, to be of very little relevance, if indeed any, for the practical purposes of macroeconomics and economic policy. It is therefore hardly surprising that in most macroeconomic models, even the microfounded ones, capital is still conceived as a single magnitude expressed in value terms (cf. Petri, F. (2004) *General Equilibrium, Capital and Macroeconomics: A Key to Recent Controversies in Equilibrium Theory*. Cheltenham: Edward Elgar).

[14] Garegnani, P. (1970) Heterogeneous capital, the production function and the theory of distribution. *Review of Economic Studies*, 37: 407–36.

With particular regard to the mechanism described in §2.1, whereby part of the gross saving – proportional to the degree to which the real capital recovers its ‘free’ form – is returned to the PFs and to the older generation, we can conclude that its plausibility is an empirical question and therefore hard to assess in theoretical terms. As regards the mechanism illustrated in §2.2, the crucial role is played by the critique of capital theory, which shows that the neoclassical prediction concerning the adjustment process is irremediably flawed.

Can we therefore conclude that the EV is sounder than the NEV? It would appear so, even though we have arrived at this result by a more tortuous route than the former’s champions. I must just add that the respective advantages of FF and PAYG schemes are compared in this discussion as though pension policy were free to opt for one or the other by a stroke of pen. As shown in Cesaratto[2, 3, 8], this is not so, since the *creation* of an FF scheme runs up against various obstacles, some of which are recognised also by conventional scholars.

Conclusions

Prof. Kuné[1] takes up some aspects of my contributions to the pension debate but ignores my criticism of the neoclassical interpretation of FF pension schemes, an interpretation he indeed appears to endorse. The purpose of this comment is to provoke some response to my critique of the neoclassical approach – which unfortunately informs much of the current discussion on pension reforms – and to the conclusions I derive from it as regards pension policy.