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Three Obstacles to the Transition from Unfunded to Funded Pension Schemes

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Abstract - The paper examines the dominant views on the adoption of mandatory *Fully Funded* pension schemes (*FF*) as a partial or complete substitute for the unfunded *PAYG*. Three obstacles to the *FF* reform are envisaged. To begin with, the reform may fail to boost workers' marginal propensity to save, since workers may contract their voluntary saving to compensate for the larger mandatory saving to *FF* schemes. Secondly, if *PAYG's* payroll contributions are reduced and diverted to an *FF* scheme, the larger private saving supply will be balanced by a lower government saving, if the government is committed to honouring the current pension payments. Thirdly, Keynes' saving paradox, reinforced by the capital theory critique initiated by Sraffa, suggests that the rise in the marginal propensity to save does not result in an increase in capital accumulation, but rather in a fall of income and employment.

JEL classifications: H55, J26, J32, B51

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I had thought that vulgar Keynesianism – the idea that monetary policy and interest rates had no bearing on aggregate demand – was blessedly extinct. ...I was wrong' Aaron (1990-91, p.170).

Introduction*

In a famous paper Samuelson (1958, p.468) envisaged capital accumulation as a way to 'trade with Mother Nature current consumption goods in return for future consumption goods'. Samuelson made explicit reference to neoclassical Capital Theory. At the same time, writing in a Keynesian age, Samuelson did not regard *Pay-as-you-go* programs (*PAYG*) as detrimental to capital accumulation, nowadays a *leit motif*. Later, well into the thick of the monetarist offensive, Martin Feldstein (1974) criticized *PAYG* from the point of view of neoclassical theory, arguing that "[b]ecause social security contributions are used to pay concurrent benefits, the capital stock is smaller and income is less" (*ibid*, p.923). This paper will critically examine the mainstream views of the adoption of mandatory *Fully Funded* pension schemes (*FF*) as a partial or complete substitute for the unfunded *PAYG,* focusing in particular on the role played by neoclassical capital theory in the proposed transition.

To proceed in an orderly way, we shall take advantage of a distinction put forward by Feldstein (1976) between 'tax design' and 'tax reform'. According to this classification, '*design* is a guide for … policy …in the "original position"' (ibid, p.77, original italics). By original position we mean here an economy without a mandatory pension program. However, even if a formal

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pension scheme is not in place, non-mandatory old-age provisions - in addition to saving motivated by other reasons - may well exist, through private saving policies, personal transfers or charitable donations. We shall therefore define as an *imperfect design* problem the question of the introduction of a mandatory pension scheme where only voluntary ones exist – as distinguished from a (less realistic) *perfect design* problem regarding the introduction of a new pension scheme where neither formal nor informal ones exist. Feldstein's classification also suggests that a '*reform* must take as its starting point the existing …system' (*ibid*, original italics). The reform context is the most realistic, since it is related to economies that have to decide whether to move from an existing institutional pension scheme (*PAYG*) to a different one (*FF*). In this case, it will not be enough to make a judgement on the basis of the relative benefits of *PAYG* and *FF* schemes – as it is usually done by comparing the respective rates of returns -, since the costs and macroeconomic implications of moving from one arrangement to another have to be taken into account.

According to dominant opinion, the introduction of *PAYG* instead of a *FF* scheme in most industrialized countries is equivalent to an original sin. The fault can be remedied only if one or more generations reduce their consumption in order to compensate for previous profligacy. This would reverse 'the initial intergenerational redistribution, shifting income back from the current to the future generations' (Holzmann, 1998, p.3). Unfortunately, no one wants to be that current generation. Even accepting the mainstream argument about the desirability of a *FF* scheme, there is a cost in terms of transition between the two systems.

Ideally, according to the conventional theory, a successfully created mandatory *FF* scheme would permit an enduring solution to the old-age risk to be achieved by increasing the accumulation of savings by those who are already saving to prepare for the old-age risk and by widening the number of workers that save for this purpose. For this reason, mainstream economists generally associate a fully successful reform with a rise in aggregate capital accumulation. We consider therefore as a test for a successful reform a rise in national saving, what we shall define as the 'saving test'. More precisely, we define as the *saving test* for a fully successful transition to a

FF scheme a situation in which both the objective (a) of a rise in 'foresight' saving and (b) in national saving are realized.

This paper examines three obstacles to the *FF* reform. In the first place, given an imperfect design context, the reform may fail to raise workers' marginal propensity to save, since workers may contract their voluntary saving to make up for the larger mandatory saving. Secondly, this failure is even more likely in a reform context. In this context, if *PAYG's* payroll contributions are reduced and diverted to a *FF* scheme – so that workers have less incentive to contract their voluntary saving - the larger private saving supply will, however, be offset exactly by a lower government saving, if the government is committed to honouring the current pension payments. Thirdly, even if workers accept the double burden of paying extra payroll contributions to a *FF* scheme - without a reduction in *PAYG* contributions and without contracting their voluntary saving - Keynes' saving paradox, reinforced by the capital theory critique initiated by Sraffa (1960), suggests that the effect of the rise in the marginal propensity to save is not an increase in capital accumulation, but rather a fall in both income and employment. If this happens, the *FF* reform will not only fail to increase national saving, but will also undermine the economic viability of *PAYG* that hinges upon the amount of aggregate wage income.[1] An additional paradox is that the resulting

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1 In order to examine these objections, it may help to distinguish between a rise (i) in the marginal propensity to save, *s*, which is a behavioural parameter that the FF reform aims to modify, and (ii) in the saving rate S/Y . According to the neoclassical position, a rise in *s* does lead to an increase in S/Y_n , where Y_n is the given full employment or 'natural income', and correspondingly of I/Y_n , where I is investment. That is, in a neoclassical setting, a rise in *s* does correspond to an increase in the *full-employment* saving rate S/Y_n . For Keynesian economists, however, if *s* rises, this may well result in a higher S/Y , but one that is obtained through a fall in *Y*, given *I* (the fore-mentioned 'saving paradox' to which will shall return in the last section).

PAYG deficit will be financed by the newly created, and in this respect unfunded, pension funds (PFs)

1. ***Fully Funded schemes and capital theory***

An *FF* scheme is an old age pension scheme– generally, but not necessarily, private - that accumulates reserves invested in private assets representative of the private capital stock. Old-age insurance comprises two aspects: the first is not distinguishable from a *saving plan*, while the second belongs to the insurance domain.[2] In the present paper we are mainly concerned with the first aspect, in the analysis of which capital theory is involved. If we assume that the olds all have the same survival rate, the old-age risk-sharing side of an *FF* scheme can indeed be neglected.

An *FF* scheme works as a sort of 'relay race' between generations in which *real* reserves held by the elderly through the PFs are the baton that the old generation sells to the young to obtain part of the social product. *The test of a pension reform aimed at the creation of a FF* scheme *is therefore whether or not it leads to the formation of an additional stock of capital and corresponding financial reserves*. Let us define this as the 'saving test' of pensions reform. According to neoclassical principles the capital stock rises if there is an increase in the community's saving supply out of full-employment (or natural) income. Clearly, this is not correct from a Keynesian point of view, which rejects the conventional causal relation between saving and investment, as we shall see later. But even reasoning in neoclassical terms, we have to explore in which cases one may expect an FF reform to lead to a higher full-employment saving rate in economies in which informal or formal pension schemes are already in place. As a preliminary step, let us examine the marginalist roots of the dominant view, linking the conventional view of *FF* scheme to the Marginal capital theory.

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2 Workers use the saving accumulated through the PFs to buy an old age insurance.

Conventional economists explain the investment decisions that in the past gave rise to the existing capital stock in terms of marginalist principles, according to which gross investments are dependent on saving. When dealing with an *FF* scheme, these economists have two models in mind. On the supply side of the saving decisions the reference model is Modigliani's life-cycle theory (Modigliani, 1986), which is an elaboration of Keynes's 'foresight' motive of saving decisions (Keynes, 1936, pp.107-108). On the saving demand side, the reference point is the marginalist causal relationship between savings and investment, clearly expounded, for instance, by Knut Wicksell (1934) and employed by Solow (1970) in the so-called 'neoclassical growth model'.

The capital stock, heterogeneous in nature, must of course be measured according to some homogeneous standard. According to the marginalist approach, all physical capital goods have the same economic origin precisely in the amount of consumption goods whose enjoyment individuals decide to postpone to the future. This is the conception that the supporters of *FF* schemes refer to: by selling the assets they possess to the fully employed young, the old (also previously fully employed) are able to recover the consumption goods 'crystallised' in the capital stock, while the constancy of this 'consumption fund' is assured by the renewed abstention from consumption of the workers. In a stationary economy, the dissaving of the olds is matched exactly by the saving of the workers so that the amount of consumption goods 'incorporated' in the capital stock remains constant. In this setting the pension funds just act as buffers between overlapping generations. The marginalist principles ensure that, for a given labour supply, substitution among consumption goods or among productive factors (e.g. Solow, 1970, pp.15-16) transforms agents' saving decisions into an increase in the average per-worker capital endowment. Notably, when Samuelson (1958, p.468) envisaged capital accumulation as an alternative way to *PAYG* of trading 'with Mother Nature current consumption goods in return for future consumption goods', he was explicitly referring to traditional Capital Theory, which is also behind Feldstein's (1974) influential case for adopting an *FF* scheme and the recent models of balanced growth with overlapping generations (e.g. Auerbach & Kotlikoff, 1987).

According to the neoclassical view, an *FF* reform thus has two possible advantages: (a) by increasing the number of 'foresight' savers (and per-capita level of 'foresight' saving), it raises the supply of 'foresight' savings $S^{f.sight}$ and helps to solve the old-age problem; and (b) by increasing the national saving supply, S^N, and the capital stock, it raises the present per-capita capital endowment, preparing the economy to deal with the allegedly impending demographic shocks. However, as we shall argue in the following sections, the institution of an *FF* scheme is not necessarily associated with an increase in the national saving rate. Moreover, in section 5 we shall examine Keynes' saving paradox in which the reform raises the 'foresight' saving for some individuals, but at the cost of a corresponding fall in saving for other individuals, so that S^N does not rise. We might thus define as an *abortive FF reform* one that does not raise the saving supply, even if it creates an *FF* scheme.

In the case of a fully successful *FF* reform in which both $S^{f.sight}$ and S^N increase, it is important to note that, *ceteris paribus*, *the rise in the capital-labour coefficient takes place only in the take-off phase of the pension funds, that is when there are net saving decisions in the economy.* Once a new regime is established, with a stationary population or in a steadily growing economy, the saving decisions of the young are matched, on average, by the dissaving decisions of the old, in the above-mentioned relay race in which the stock of capital assets held by the pension funds is the baton.

According to conventional economic theory, a fully successful reform would thus advantage both the current standard of living by raising the per-capita capital endowment and output, and prepare the economy for possible demographic shocks. In an *FF* scheme retirees are indeed endowed with real reserves, that is with financial assets representative of the capital stock. Should there be fewer workers in future generations this capital stock may be used once again to increase the capital-labour ratio, or it may be given back in liquid form to the olds by not replacing the now

unwanted capital goods and returning the amortisation quotas to them.[3] In the case of increasing longevity, the use of the real reserves can be distributed over the longer survival period.

2. The adoption of FF and PAYG schemes and the saving rate in a(n) (imperfect) design context

For the sake of argument let us provisionally assume in this and in the following sections, as generally implicit in mainstream discussions of pension policy, that the economy is operating under full employment conditions (or at some 'natural' rate of unemployment). This is tantamount to assuming that all saving translates into investment, a key assumption for the neoclassical view of pension reform. The reader is forcefully warned that this assumption is only temporarily made in order to understand the mainstream reasoning, and to identify the cases in which it is inconsistent. In full employment, moreover, a rise in full-employment saving cannot be accomplished without causing a fall in consumption, either private or social, whether of the workers or of the olds.

The controversial question is that of the impact on saving behaviour of the *introduction* of an *FF* in an economy with no mandatory pension system. Indeed, we cannot exclude the possibility that individual solutions to the old age problem are in place, either through personal saving or through personal transfers. We have defined this *an imperfect design problem*. In this context, the mere establishment of an *FF* scheme does not imply that the saving test has been passed. [4]

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3 The cited increase in the capital-labour ratio relies on the neoclassical factor substitution mechanisms later criticised in this paper on the basis of the results of the capital theory controversy. As a result, the alleged advantages of an *FF* scheme with respect to a fall in fertility are not rigorously proved.

4 This is a much debated topic in the literature. Cf. *Journal of Economic Perspective*, Fall 1996 for the theoretical debate; Kohl & O'Brien, 1998, p.40 for an extensive mostly empirical reading list, and World Bank, 1994, Issue Brief 4 for a short summing up.

Suppose that a mandatory *FF* scheme, imposing ΔS_w^{mand} of compulsory saving on workers, is introduced.[5] We examine pre-reform saving-behaviour in four different households: (a) voluntary saving for the life-cycle or 'foresight' motive; (b) saving for other (non old-age) precautionary motives; (c) saving for the bequest motive; (d) non saving. For the sake of simplicity we consider only the most extreme cases, leaving the reader to work out the intermediate combinations.

(a) With regard to those workers that already save due to the foresight motive, mandatory saving will probably totally or partially displace voluntary saving, and the net impact on the marginal propensity to save and on national saving may be nil, that is $\left|-\Delta S_w^{vol}\right| = \Delta S_w^{mand}$. So, in the worst case caused by the introduction of a formal *FF* scheme, only the management of the capital assets has changed, but not their total amount (World Bank, 1994, p.308). Even worse, a mandatory old-age scheme, being based on risk-sharing between people with different survival expectations, requires less saving accumulation to achieve the same old-age consumption target. In other words, under voluntary schemes, far-sighted subjects that want to obtain a target consumption whatever their survival in retirement will tend to save in excess of what would be required to obtain that target if the amount of necessary saving were determined according to the average number of periods of expected survival. With a mandatory scheme they can achieve the same result more efficiently without that excess saving.

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5 The introduction of an *FF* scheme must be mandatory in order to solve the *adverse selection* problem connected with private old-age insurance. As is well known, individuals with below average survival expectations would tend not to buy old-age insurance policies since at the moment of retirement they prefer to retire the capital, and leave it as a bequest, rather than receive it back as an annuity. Private insurances will react to this behaviour by making the annuities much more costly. A mandatory *FF* scheme – which is not necessarily public - is therefore necessary both to assure a universal participation in the system and to warrant a compulsory solidarity between retirees with different survival rates.

(b) In the case of precautionary saving (not motivated by old-age), a mandatory *FF* reform may well induce people to divert part of their saving from the original purpose to old-age risk. Clearly, however, the total protection from unforeseen events – some of them also related to old-age as in the case of health – has not changed, so that it cannot be said that the reform has been successful.

(c) In the instance of bequest-motivated saving, the case is more favourable to a positive effect of an *FF* reform on the marginal propensity to save and on aggregate saving, if individuals increase their foresight saving without decreasing their bequest-saving, with some caveats, however (Engen & Gale, 1997, p.124). Suppose that workers have already solved their old age problems in the form of expected support, i.e. a direct transfer, from their progeny (supposing that all have the same offspring), to which they expect to leave a bequest (say, a house).[6] In this case, the individuals, considering that they will have to rely less on transfers from their offspring (that we may suppose had the same value as the bequest), may react by reducing their bequest-saving, diverting it to mandatory 'foresight' saving. The children, when working, will buy the capital assets from their parents, sustaining their consumption, financing this purchase using the same income they previously used to support them directly. Alternatively, the old may still rely on transfers from their offspring to finance their old-age consumption, leaving all the capital assets to them as a bequest when they get them back from the *PFs* (in other words, the reform would change the management of saving, but not its final destination). In both cases the effect on private saving is nil. Moreover, in the first approximation, a transformation of bequest-saving to mandatory old-age saving does not better prepare the economy for a demographic shock. In both cases, if the number of workers gets smaller, the olds can survive by relying on the real assets they possess. Bequest

6 In China, 52% of older people are said to live with their children, frequently in three or four generation households, in houses often possessed by the parents (Saunders, 2003).

saving, no less than foresight saving, is indeed a safety net for the older generation in case of difficulty of receiving support, in one form or another, from the young generation.

(d) It is finally possible that low income or workers with little foresight did not save before, so that mandatory saving to *FF* schemes determines a rise in national saving (World Bank, 1994, p.309). In this case, both the mentioned objectives are realized. The problem is that non-saver workers behave this way not because they lack foresight, but because they are too poor to save, for instance in developing countries – and it is difficult to force them to further reduce their low standard of living. We are thus left in a vicious circle: if workers are already saving, mandatory saving will probably displace voluntary saving. If they do not save, they are probably too poor to be forced to save.[7]

It can be concluded that only in a limited number of cases does the *FF* reform pass the full saving test and, in particular, its success rests on the existence of workers wealthy enough to save, but lacking foresight, so that they did not save for the foresight motive before the reform. Musgrave (1981, p.123) considered this as the most likely case, but - he concluded – 'the issue is an empirical one' (on this see, for example, Hughes, 2000). We shall see in sections 3 and 4 that the difficulties for free-market reformers will emerge also in a reform context. The examination of Keynes' saving paradox in section 5 will show that even if the policy makers succeed in convincing households to increase their saving supply, their attempt will be frustrated by the lack of reaction on the investment side.

3. The transition from PAYG to FF schemes and the saving rate in a reform context

We have argued that even if a mandatory *FF* scheme is *designed* in an economy lacking a formal pension system, no rise in the marginal propensity to save and national saving is guaranteed.

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7 Of course, workers may react by demanding higher real wages. If successful, the change in income distribution would negatively affect the saving supply out of profits. The supply of workers' foresight savings is increased, but national saving is less affected.

The more so if the *FF* scheme is planned in an economy in which there is a significant *PAYG* scheme.

Suppose that workers' contributions are reduced by $\left|-\Delta T^{con}\right|$ and that their *mandatory* savings paid into *PFs* are increased by $\Delta S_w^{mand} = \left|-\Delta T^{con}\right|$, but *without* any corresponding decrease in current pension benefits *B* (which we assume are all consumed by retirees, that is $B = C_r$). In order to keep past pension promises, defined on the basis of accrued-to-date rights, the government may offset the fall in T^{con} by raising general taxation by $\Delta T = \left|-\Delta T^{con}\right|$. Suppose that ΔT affects only workers, whose disposable income falls correspondingly.[8] Workers may react by cutting their consumption C_w or S_w^{vol} or both.

If they are savers and cut only S_w^{vol}, the net effect of the reform on capital accumulation is nil since $\left|-\Delta S_w^{vol}\right| = \Delta S_w^{mand}$. As a first approximation, the workers will hold the same amount of capital assets as before; the only difference being that these will now be managed by the *PFs* and not privately or by common funds. In this regard, reformers admit that since workers will expect a higher rate of return on the payroll taxes diverted to the *PFs* than that previously obtained by *PAYG* (Samuelson's [1957] 'biological rate'), they should now expect a larger amount of pension benefits on the same amount of mandatory contributions (that now go partly to *PAYG* and partly to *PFs*), and will therefore, if savers, cut at least part of S_w^{vol} since, *ceteris paribus,* they now need less private savings to achieve the same standard of living when they retire. To avoid this effect, the reform must be designed so that current workers will get the same amount of pension benefits (from

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8 If ΔT hits only profits, it is likely that saving out of profits will be negatively affected. In this case, the additional workers' mandatory saving is financed out of profits, and an FF scheme created, but the reform cannot be said to be successful in terms of increasing national savings (see also the preceding footnote).

PAYG and *PFs*) as before (from *PAYG* only), the workers will not cut their voluntary saving S_w^{vol} at all, but only C_w .

Finally, if they are not savers, workers will cut only C_w , so that national saving rises by the full $\Delta S_w^{mand} = \left| -\Delta T^{con} \right|$. But, once again, non-savers will probably coincide with low-income earners on whom additional taxation cannot easily be levied.[9]

To sum up, following the standard story, if workers accept the famous 'double charge' of continuing to finance the current *PAYG* pensions and starting to finance their *FF* scheme pensions without reducing their voluntary saving, they increase their abstinence from current consumption and redeem the past profligacy in favour of a preceding generation of olds (the original sin). A variant of this reform plan is the accumulation by the public scheme of a 'Trust Fund', as for instance done by the US Social Security. According to conventional theory, the Social Security surplus, if held in Treasury bonds, would, *ceteris paribus*, crowd in private investment, indirectly fostering capital accumulation, or it might be directly invested in private capital assets (see Cesaratto, 2002, for a critical discussion).

In spite of a persistent alarmist campaign concerning the sustainability of *PAYG*, neither cuts in benefits nor increased payroll or general taxes have become popular measures. So, how can a painless transition to an *FF* scheme be managed while realising the objective of increasing both workers' saving S_w and national saving S^N ?

Suppose that the current pension commitments are honoured by issuing public debt. Probably, the idea that payroll tax could be reduced so as to enable workers to divert the saved

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9 Take for instance the case of the notoriously parsimonious South-East Asian populations. Caraher (2003) argues, for instance, that 'Singaporeans have been subject to somewhat stereotypical images and regularly portrayed as high savers', while empirical evidence shows that besides the contributions to the public Central Prevident Fund 'voluntary household savings is unremarkable' due to too low wages.

income to the *FF* scheme, and the existing pension promises maintained by financing them through the public purse, while at the same time creating a genuine *FF* scheme, still has some currency with politicians and pension experts.[10] Indeed, this idea was actually applied in some Latin American and Eastern European pension reforms, and is periodically resuscitated (for instance by the World Bank, 2001, and in Italy by Castellino & Fornero, 1997, cf. Cesaratto, 2001, for a critique). Clearly, in the light of the above, this painless transition plan is doomed to failure, since any increase in full employment saving implies, by definition, a fall in private consumption or in collective spending.

Suppose, as above, that workers' contributions are reduced by $\left|-\Delta T^{con}\right|$ and that their *mandatory* savings paid into *PFs* are increased by $\Delta S_w^{mand} = \left|-\Delta T^{con}\right|$, but *without* any corresponding decrease in *B*. This time the government offsets the fall in T^{con} by issuing new debt by $\Delta DEBT = \left|-\Delta T^{con}\right|$. The new debt is exactly equal to ΔS_w^{mand}, that is, it is exactly matched by the rise in mandatory savings**.** In effect, the mandatory contributions to *PFs* are used to buy the government bonds issued to finance the social security deficit. Government savings S^G have fallen by $\left|-\Delta S^G\right| = \left|-\Delta T^{con}\right|$, so that S^N does not change, given that $\Delta S^N = \Delta S_w^{mand} - \Delta S^G = 0$. The fact that S^N has not risen is not surprising, given that neither C_w nor C_r (= *B*) has fallen.

What we get is a *privatised* PAYG system – a 'narrow prefunded scheme' in Orszag & Stiglitz's parlance (2001, p.22) - that is financed not through contributions but by issuing public debt. This is bought up by *PFs* that collect the mandatory savings of workers.[11] The figure provides a graphical image of the longer and certainly more costly path taken by workers' contributions to reach the retired generation.

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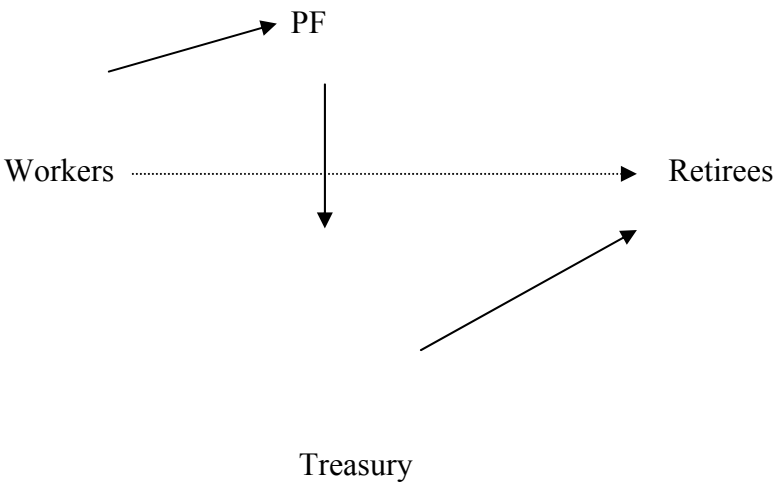
10 Myles & Pierson (2001, p.313), for instance, seem to fall into this error.

11 The distinction between genuine (funded) and false (unfunded) *FF* schemes was well known before Orszag & Stiglitz (2001) and others popularised it. Cf., for instance, de Finetti, 1956, p.279; Thompson, 1983, p.1445.



Legend:

⋯⋯▸ Traditional *PAYG*

——▸ Privatised *PAYG*

It must perhaps be added that, of course, *PFs* have thus been created that, in a sense, collect workers' foresight saving. However, S^N has not increased and behind the higher 'foresight' financial wealth held by the workers there is public debt, not private capital assets (i.e. the real reserves that constitute a genuine *FF* scheme). The World Bank experts recognize that this type of reform strategy 'does not change the overall level of debt nor the net asset-position of government; it only reduces the amount of implicit debt made explicit' (Holzmann, 1998, p.10; cf. also James, 2001, p.64). However, they insist on considering this as a '*partial shift* towards a funded system' (Holzmann, p.10, original italics), which it is not at all.

4. Alleged advantages of disguised PAYG

Clearly, privatised *PAYGs* are nothing but a more costly version of the traditional *PAYG* scheme: a poor result for pensions reformers. It has progressively been pointed out by the mainstream literature that this is precisely the 'ground breaking' kind of reform that has taken place in Chile (and in other countries). In Chile only the existence of a government surplus realised in the years of the pension reform by cuts in non-pension public spending *G* prevented the reform from leading to an increase in the public deficit (which it did in Argentina, cf. Bertranou & Grushka, 2003, p.107).[12] The alternative Keynesian interpretation suggests that, in Chile, only the export-led investment burst impeded the deflationary effects of the reform (Agosin, 2001). One of the academic champions of Chilean pension reform candidly admits that this kind of change — which he calls 'apparent funding', or 'neutral relabelling' of a *PAYG* scheme — does not 'attempt to increase national saving' (Valdés Prieto, 1997, p. 191). So, further economic arguments have been envisaged to justify this 'neutral relabelling' experiment. Five of these arguments can be listed. Let us examine them in turn.

(i) The first argument is related to the political 'insulation' of the pension system from the political process once government bonds guarantee pension rights (Valdés-Prieto, 1997; p. 201; Diamond, 1996). From an economic viewpoint, this claim sounds self-contradictory given that a privatised *PAYG* cannot but suffer from the same troubles as a traditional *PAYG* and the mere fact that the pension promises are being held in government bonds does not guarantee anything to pensioners. In the event of Government debt default, the solvability of such pension schemes in countries that adopt it depends, as much as traditional *PAYG* does, on the economic capability and political will to maintain the promises. The Argentina experience after the default of December 2001 might, however, be brought in to support the mainstream claim. Bertranou & Grushka (2003, pp.109-110) provide a balanced assessment of the experience. At the end of 2001, 70% of

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12 For a critical review of the results of the Latin American reforms cf. Mesa-Lago (2002).

Argentinian funds administered by PFs were held in public securities. The value of these funds was converted into pesos after the crises, what meant the loss of 60-70% of their dollar value at the end of 2002. However, with regard to the PFs, the government avoided the default that occurred to the detriment of other creditors, assuring also the continuity of interest payments and repayments. So, evaluating their performance in real domestic value, the PFs (privatised PAYG) performed better than the public scheme (genuine PAYG), which saw benefits reduced (in peso terms) by 13% from the mid-2001. The question is, however, that the limited harm (in peso terms) to the PFs has probably been at the cost of greater damage done to other sectors of the Argentinian Welfare State.

(ii) It might be argued that as a result of a privatised *PAYG,* workers, in addition to a perfect 'actuarial equity', would get a rate of return on their contributions that was higher than the notional one obtained by the traditional *PAYG*. The question is who is called upon to pay for this higher return. If, once the system is fully under way, the cost to the public purse is met by increasing the taxation on the same workers, the net advantage would be nil (Geanakoplos *et al.* 1998, pp.14-17). If progressive taxation involved other social groups, there would be a favourable net effect for labourers. But this increase in benefits vis-à-vis past contributions could just as well be obtained under the traditional *PAYG* without incurring the higher managerial costs of the privatised *PAYG*. The World Bank experts recognise indeed that if the rate of interest on government bonds is greater than the growth rate of the wage bill, the privatisation of *PAYG* can be accompanied, if financed by public debt, by a '*true transition deficit*' and that 'this is the only deficit which matters economically' (Holzmann, 1998, p.14, original italics).

(iii) According to the prevailing view, *PAYG* has negative externalities on the labour and financial markets (e.g. *ibid*, p.23).

With regard to the labour market, a privatised *PAYG* is considered to show positive externalities on the labour market as a consequence of the greater actuarial equity of the new scheme that rigorously links expected benefits to past payroll contributions. Provisionally leaving aside the confidence that these authors have in the neoclassical mechanisms, whereby an increase in

labour supply would be followed by a rise in employment, the same mainstream empirical literature seems to disprove both the idea of a labour supply function that is highly elastic to real wages, especially with regard to low income workers, and the relevance of the reform as an incentive for informal workers to join the formal labour market. In any case, the actuarial equity might be much more conveniently obtained through the so-called Notional Defined Contribution reforms of *PAYG* without the need for a privatisation. In any event, the results of the Argentinian 1994 reform disprove, for instance, the expected increased formality of the labour market, which actually decreased (Rofman, 2000, pp.18-20; Bertranou & Grushka, 2003, p.107).[13]

With regard to financial markets, the very fact that a huge amount of payroll taxes are managed by the financial sector would, it is repeated *ad nauseam*, make it 'deeper, more liquid, and more competitive' (Holzmann, 1998, p.25). This is probably seen as the result of economies of scale and the learning-by-doing gains that result from the larger financial stock and flows that the sector has to administer. The higher efficiency, so the argument goes, would boost investment and growth. These efficiency effects on the financial markets are not a mechanical outcome and not so likely as to support the case for a costly privatisation of PAYG. Moreover, they might not even be indispensable, since rapid economic growth has taken place in many countries, including Italy, Germany, Japan and most Asian Tigers, in spite of the underdevelopment, by Anglo-Saxon standards, of the financial markets (and probably helped by that underdevelopment and by State dirigisme in the financial sector).[14]

(iv) The fourth argument concerns the diversification of the assets held by the pension funds, which only at the beginning have to be public bonds, but which can later be traded for private or international assets in order to raise the rate of return: the 'unfunded' schemes become 'diversified'

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13 In actual, the Italian Notional Defined Contribution reform of 1995 does not seem to have sorted out effects in this direction either.

14 On these issues cf. Singh (1996).

funds. On the face of it, however, in a closed economy, this diversification may just lead to a reshuffling of portfolios by which *PFs* will hold fewer Treasury bonds and more private assets, and the opposite as far as the other private or institutional funds are concerned. The reshuffling is likely to lead to a redistribution of the financial income and, in all probability, to a rise in the interest rates on public bonds (e.g. Diamond, 1996, pp.72-73; Gale, 1997, pp. 74–75; Palley, 1998, p.107; Holzmann, 1998, p.26; World Bank, 2001, p.6).

There has been some debate concerning the existence of a net positive effect of this kind of reshuffling on the saving supply. The debate has not actually been concerned only with *PF's* diversification in private securities, but with the proposal that the US Social Security *Trust Fund* diversifies in the private capital market.[15] But for our purposes the question is the same: the effects of a diversification of the assets held by an institution – private *PFs* or a Government Trust Fund – from government bonds towards private assets. In this regard Diamond & Geanakoplos (1999, p.1) and Orszag & Stiglitz (2001, pp.29-30) both quote Alan Greenspan who, in a speech delivered in 1996, suggested the absence of clear macroeconomic effects of such portfolio reshuffling. Against this position, two laborious justifications for diversification have been put forward by Diamond (1999). According to this author, although diversification is 'initially an "asset swap"', the higher returns on investing in private securities within Social Security or *PFs* will certainly be saved and accumulated, this may not be the case when the higher returns accrue to individual investors. This first effect, however, should be confronted with the higher borrowing costs met by the Treasury that, by increasing taxation or public debt, may negatively affect the saving supply. The second effect, endorsed also by Orszag & Stiglitz (1999), relies on the existence of households that do not invest in the capital market. If social security forces them to do this, there is 'a possible improvement in risk bearing in the economy as a consequence of having more people share in the

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15 For a critical analysis of the US Social Security *Trust Fund* cf. Wray (1990-91) and Cesaratto (2002, pp.164-166).

risky returns. …The economy would be likely to respond in a way that increased future expected output because of the change in the mix of investment in response to a lower risk premium' (Diamond, 1999, p.55 and 57). Admittedly, however, 'such a response …is difficult to predict'. On balance, these 'are smaller effects for the economy as a whole than would be the effects of new investment resulting from decreased consumption' (ibid, p.57), that is those obtained from a fully successful *FF* reform.

(v) One final goal of this kind of reform is to disclose the so-called hidden pension debt. As Mitchell & Zeldes (1996, p.366) put it: 'privatisation would dramatically increase the measured fiscal deficit. Furthermore, issuing recognition bonds would increase measured government debt. These factors could induce politicians to cut *G* or raise taxes […]'. The World Bank officially endorses this perspective:

> Debt finance simply exchanges the old implicit debt and interest payments for new explicit debt and interest payments. Property rights in the debt are solidified, and market interest rates must be paid. This method of handling the debt does not require current generations to reduce their lifetime consumption, but neither boosts future saving nor growth, so future generations derive no benefit. Much of the demand for the new bond issues will come from the new pension funds, which are rapidly accumulating savings that have to be invested somewhere. But a new bond issue may be politically difficult in countries that already have a large deficit. People would suddenly become aware of how enormous the social security debt is. The transition would treble the size of the explicit debt in most …countries. Although the change from implicit to explicit debt should have no macroeconomic impact in a country with fully informed citizens, it might change government budgetary behavior in the more realistic case in which the change provides new information to policymakers and citizens' (World Bank, 1994, pp.267-9).

The same strategy has been recently advocated also by Valdés-Prieto (2001, p.80-81). This stance may be part of what we may define, after Caffè (1972), as the 'strategy of economic

alarmism' aimed apparently at alerting, but in practice at disquieting, public opinion - justifying cuts both in *PAYG* pensions and in other social spending. In a similar direction Palley (1998, pp.106-7) denounces that cuts in government spending are the real objective of pension reforms: 'the debate over privatisation of social security may really be a Trojan horse, the real purpose of which is to starve government of revenue'.

To sum up, these ancillary arguments put forward to justify a privatisation of PAYG that clearly fails to achieve its main target of increasing full-employment saving, are rather *ad hoc* and considered flawed or weak even by mainstream economists.

5. Modigliani's and Feldstein's transition plans and the saving paradox

Modigliani and Feldstein (and respective associates) present 'transition models' based on a successful raising of the marginal propensity to save that they claim would allow a smooth changeover from *PAYG* to an *FF* scheme. With reference to the American experience, they propose to raise T^{con} ('double burdening') in order to obtain a social security surplus. To avoid workers correspondingly contracting their voluntary saving, the expected *PAYG* pensions would be lowered, in line with the reduced contribution to *PAYG*. This surplus could then be placed in individual accounts managed by private (or public) pension funds that invest in private assets, or alternatively, directly managed by the Social Security 'Trust Fund'. Most mainstream American economists endorse similar plans. A reform based on a double charge was adopted by Canada in 1997 (Myles and Pierson, 2001, p.319). Both Feldstein and Modigliani (cf. e.g. Feldstein & Liebman, 2001, pp.77; Modigliani, Ceprini & Muralidhar, 1999) go further, perceiving the opportunity for a slow but progressive substitution of *PAYG* with an *FF* scheme. The goal of this kind of reform is to obtain from the *FF* scheme a level of real pension benefits equal to those obtained from existing PAYG but at a much lower contribution rate. They rely on the continuous reinvestment of the interest accruing on financial investment that, through the power of compound interest, will transform relatively small contributions into a much greater final capital (cf. Cesaratto, 2002 for a

simple example). This class of transition plan brings us back to the central, controversial issue of the link between saving and investment.

The thesis that additional saving will help more effectively to solve the problems of an ageing society crucially relies on the neoclassical proposition according to which a rise in the saving rate leads, *ceteris paribus*, to a higher investment rate due to the adoption of more capital intensive techniques.

In Chapter 16 of his *General Theory* Keynes (1936, pp. 83–84, p.211) long ago warned us not to confuse the desire by some individuals to hold more *financial* wealth with an increase in the capital stock. This desire, by negatively affecting effective demand and employment, may well decrease the income of other individuals and their gross saving supply. The net result is that aggregate financial wealth, and its real counterpart, capital stock, are unaffected.

Hicks, Modigliani and others pointed out the limits of Keynes's criticism of the conventional theory soon after the publication of *The General Theory*. The role of effective demand was circumscribed by them to short period cases in which the rigidity of the interest rate or the slow reaction of investment to a fall in the interest rate prevent the fall in nominal wages or the expansion of money supply from leading the economy back to full employment. Keynes himself paved the way to the neoclassical synthesis when he did not entirely reject the traditional approach, conceding in particular a downward sloping schedule of investment demand that was elastic to the rate of interest (*ibid*, p. 211). To defend the principle of effective demand, Keynes referred to the possible rigidity of the *nominal* rate of interest in the presence of a fall in the *natural* rate (to use Wicksell's terminology) that follows the increased supply of saving. Garegnani (1983) has pointed out that Hicks and Modigliani actually took advantage of the *short-term* nature of that rigidity to re-establish the validity of the traditional theory, at least in the long run. Garegnani also suggested how the results of the capital theory controversy, provoked by Sraffa (1960), could validate the Keynesian principle of the independence of investment from saving. What Sraffa and the subsequent controversy have ultimately shown is that it is not in general theoretically true that a fall

in the rate of interest is followed by the adoption by entrepreneurs of more 'capital intensive' techniques (see the *Quarterly Journal of Economics* Symposium, 1966, and Garegnani, 1990). The controversy focused upon the peculiar nature of 'capital', which is not a factor of production measurable in some conventional unit that is independent of distribution — like labour and land, which are measurable in physical units — but consists of commodities measurable only in terms of 'value'. This fact has dramatic consequences with regard to the neoclassical predictions about the direction of factor substitution once the factors' relative prices change. That means that, contrary to the claims of neoclassical theory, an increase in the saving rate may be followed by a fall and not by an increase in investment. As a result '[t]he fall in the demand for "all varieties of physical capital goods" as interest rates fall, will entail that the increase in the decisions to save and the corresponding additional future consumption will *not* materialise for the community in a competitive market' (Garegnani, mimeo, p. 38). Keynes reached the same conclusion, although by a different, theoretically weaker route (as the economists of the neoclassical synthesis soon realised).

The criticism of the neoclassical view of the saving-investment relation is the ultimate challenge to the dominant view of pensions reform.[16] Not only is it difficult for policy makers to raise the saving supply, as pointed out in sections 2 and 3, but even if they were successful, the effects on investment might well be disappointing and the reform prove abortive. In addition, the lower marginal propensity to consume will determine a fall of effective demand and employment. It is true that PFs are created for those workers that have luckily maintained their jobs (they save more, compensating the fall in the saving supply from the newly unemployed), but this is hardly a successful *FF* reform. Ironically, the only certain 'success' is a weakening of the employment base of *PAYG* (Palley, 1998, 99-102; Cesaratto 2002).

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16 The empirical evidence is also relatively unfavourable to the neoclassical view of the saving-investment causality.

In this regard, an additional paradox has been pointed out by Josef Steindl who suggested that a successful rise in the marginal propensity to consume resulting from the attempt to create an *FF* scheme would only depress the national product, 'and in this way [produce] the budget deficits which [are] indirectly financed by the pension funds' (Steindl, 1990, p.175). A simple example of why this is so is contained in a footnote.[17] Steindl's paradox shows that an abortive *FF* reform, which fails to raise national saving, may well lead also in this respect to the creation of *PFs*, but these are in this regard 'unfunded ' as much as the schemes in section 3.

Final remarks

In this paper we have traced the foundations of the mainstream view of an *FF* scheme in the marginalist capital theory. According to this theory, capital is a fund of consumption goods through which consumption can be postponed. In particular, a rise in 'foresight' saving is matched by additional capital accumulation. In case of a fertility shock, the accumulated capital can be either absorbed by a higher capital-labour ratio, or reconverted into consumption goods. We envisage three obstacles to an *FF* reform.

To begin with, the reform, at least to a substantial degree, may fail to raise the marginal propensity to save even in economies in which there is no mandatory pension scheme in operation. This is so because the mandatory old-age saving may substitute similarly motivated voluntary saving.

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17 Let us assume an economy characterised by the following data: marginal propensity to consume: $c_0 = 0.8$; private investment: $I = 200$; pension transfers are: $TR = 100$; contribution rate: $\alpha = 0.1$. The resulting equilibrium income is $Y = 1000$, consistent with the financial equilibrium of PAYG. Suppose that, as an effect of an *FF* reform, the marginal propensity to consume becomes $c_1 = 0.7$. The new equilibrium level of income is 729.73. Contributions are now 72.97, so that *PAYG* has a financial deficit of 27.03, which is financed out of private saving (partly voluntary and partly mandatory). The latter, given by the equation $S = s(Y - \alpha Y + TR)$, is equal to 227.03, which is enough to finance private investment (200) and the *PAYG* deficit (27.03).

Secondly, the obstacles to the fully successful creation of *FF* schemes become more dramatic in the reform context. In particular, *PAYG* reforms that rely on public debt to finance the transition are deemed to fail, since the higher private saving is compensated by a lower government saving. Although this is well known, these reforms are still proposed both by individual scholars and by international organizations as genuine shifts towards *FF* programs. The World Bank itself acknowledges that the significance of privatising *PAYG* lies in the social alarmism it may generate about the sustainability of *PAYG* schemes, creating a climate more favourable to its dismantling.

Thirdly, the attempt to increase the average community propensity to save by imposing extra contributions on workers in favour of an *FF* scheme, while cutting future *PAYG* pensions in order to discourage a reduction of voluntary saving, will have deflationary effects (Palley, 1998, pp.99-100). Other commentators on pension reforms have pointed out the importance of the criticism of the neoclassical causal relation between saving and investment (e.g. Barr, 2000, p.13; Schulz, 2002, p.87; Niggle, 2000, p.802).[18] In this paper we have reinforced this criticism by referring to the capital critique whose importance should not be underestimated since it is based on an analytical and never refuted logical flaw in neoclassical theory. The criticism of the neoclassical view of the saving-investment relation is the ultimate challenge to the conventional view of capitalisation reform. Not only is it difficult for policy makers to raise the propensity to save, as pointed out earlier, but even if successful, the effects on investment may be nil and the reform

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18 Even a World Bank pension expert is close to admitting Keynes' authority when he argues that there is 'growing evidence that it is economic growth that primarily drives the saving rate of the private sector which only in a second round provides for higher and sustained growth' (Holzmann, 1998, p.26). Note also that the criticism of the neoclassical relation between saving and investment disposes also of the idea of the investment by labour rich southern countries of savings forthcoming from the northern and ageing countries. Just think of the world as a closed economy and apply Keynes' *cum* Sraffa's criticism.

prove abortive.[19] Paradoxically, the only certain outcome would be a weakening of the employment base of *PAYG*. After the capital theory controversy this cannot be dismissed as 'vulgar Keynesianism'.

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19 This argument disposes also of Estelle James's extreme defence of the transition to an *FF* scheme in less developed countries where, given the immaturity of *PAYG*, the transition costs are lower (James, 2001, pp.66-67). Transition costs are not the only problem.

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