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**Pension Systems and Reforms:
a Note on Transition Problems**

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PENSION SYSTEMS AND REFORMS: A NOTE ON TRANSITION PROBLEMS

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11.1. *Introduction.*

The purpose of this chapter is to focus on some of the major problems of the existing pension systems. It is currently held that those systems exhibit fundamental imbalances which call for radical reform. It is in fact a widely shared view that current systems are unsustainable: hence the questions concerning the design of reform, together with the associated problem of identifying feasible patterns of transition from the inherited system to the reformed one.

Accordingly the first issue to be addressed will be to highlight the fundamental imbalances affecting the existing systems and illustrate how they have come into being historically. Then the issue of the transition patterns will be tackled with reference to alternative reform designs; the argument, on this second point, will be mostly theoretical. Finally our considerations will be brought to bear on the actual features and on the current progress of the systems of the five countries treated in this report and a judgment on feasibility and likely prospects will be formulated. A questionnaire has been prepared for the five countries in this project.

It is worth mentioning immediately that the problem of transition is currently understood to revolve basically around two main points. A first point concerns measures for starting a path leading from a redistributive or pay-as-you-go system back to the saving-insurance principle or, in other words, to a funded system; a second point touches on the share of private insurers in the pension business. Through tackling our question we expect to contribute to put such and similar issues in a proper perspective. The analysis of the kind of unsustainability involved here will allow us to see how far the proposed measures can actually promise to cope with the inherent problems.

The current conventional wisdom on the transition issue calls for immediate clarification. It will be seen below that pension systems can be classified with respect to a number of contrasting characteristics, so that in principle it is possible to think of transitions between all the possible states defined in terms of all the sets of compatible characteristics. However, historically, taking the experience of major western European industrial systems into account, a few specific sets of characteristics need contrasting. Basically, we propose to focus on a few contrasting characteristics: payg vs. funded, defined benefit vs. defined contribution systems and redistributive vs. actuarial ones.

The above clusters of characteristics provide important schemes to understand the present situation. Looking at future arrangements and at the transitions to them, it will be necessary to be more imaginative and also think of new schemes.

11.2. *The path to unsustainability.*

a) *The lack of actuarial balance.*

The English expression of *welfare state* is of fairly recent coinage, while the corresponding German concept of *Wohlfahrtsstaat* is of much more ancient usage. It dates back at least to the XVIII century and Johann Heinrich Gottlob von Justi's *Staatswirtschaft*, of 1755, may be mentioned. This reminds us of the administrative view of the *economy*, which remains to the present day a very important sense of the word and is of course implied by its very etymon. The welfare state in the modern sense arises historically at a later stage, in Germany itself, at the time when Otto von Bismarck was ruling. In particular it was during the 1880s that the German government legislated to establish the first modern social security system in the world, that being the core of the welfare state as a more general and comprehensive system. In that system social insurance as an individual right came to be affirmed.

We may here confine ourselves to recall two paradigmatic figures, particularly in the second half of the XIX century, which appear to embody the main aspects of the German welfare state model: Lorenz von Stein and Gustav von Schmoller. The idea of *Sozialstaat*, the modern social state (Demaria, 1946), emerges through Stein's work and his *Verwaltungslehre*. From the notion of *Klassenbewusstsein*, brought forward by Stein as early as 1842, i.e. before the Marx-Engels *Manifesto*, Stein - following a route quite different from Marx - derives the idea of 'social democracy'. Stein's work envisages a conservative agenda which aims, on one side, to overcoming the contrast between capital and labour and integrating the labouring masses within the existing machinery of the *bourgeois state*, while, on the other side, taking into account the *subsidiarity* principle and the distinction between *state and society*; by sticking to the latter principle, he, to some extent at least, is dodging the Tocquevillean "oppression" which is otherwise seen to be constantly impending upon the life of modern democracies. In the same vein Schmoller's work is highly representative of the so-called *Kathedersozialismus* and of the activity and ideals of the influential *Verein für Sozialpolitik*. The multiplication of the economic functions of the State is well reflected in "Wagner's law" (Adolph Wagner himself belongs to the 'Socialists-of-the-Chair'); a great deal of such functions, of course, do concern the social security and welfare.

While the influence of the German strand of thought must be taken into consideration in creating wide persuasions on the development of *insurance* as a vital sector to be run by the State itself, there is also a different source to be discussed of the contemporary notion of welfare state; this is based on the more general notion of social *assistance*. The latter source has strong connections with the British and the Swedish experience (Ritter, 1991, esp. ch. 4.2). Sweden and England - Ritter argues (ibid.) - with their principle of state assistance during old age - actually parted company, even before the first world war, from the German insurance system. These systems, starting their development early in the XX century, contributed to consolidate the pioneering role of central and northern Europe in social security. The factors behind this well-known phenomenon are linked to the early diffusion particularly in central and northern Europe of the small nuclear family and the widespread conditions of individualistic urban life. At the same time those regions of Europe had, generally

speaking, a stronger historic tradition of public assistance; coming to our century, moreover, in Sweden and Britain in particular, the influence of the rising labour movement - as an effective and (with time) even dominant political force - starts to be felt.

These observations may be useful to place the rise of social security in historical perspective. The German model, in particular, mainly builds on the *insurance* principle. Although, Bismarck's own plans did envisage at an early stage a fairly large financial involvement by the State, his guidelines did abide by the insurance principle; the more so, since *a posteriori* the financial burden borne by the State turned out, in fact, to have been rather limited. The Swedish and British models, in their turn, are strongly influenced by the *assistance* principle. Despite all the practical combinations of the two principles, it is useful to keep them separate, especially as this distinction still lies at the centre of the alternatives discussed today.

The elements involved in the distinction are essentially the following two:

1. the assistance principle contains an *equalitarian* bias and also
2. it weakens the link between *individual* costs and benefits, i.e. between contributions and pensions. In addition to these, there is another aspect which is often stressed: the different models may differ according to their coverage and can be distinguished into *occupational* and *universal* schemes. Of course the solidarity implied by the assistance principle, by itself, tends to universality.

Britain in 1908 and shortly after Sweden in 1913 departed from the German model by establishing, with different rules and coverage, a system of social security to be financed by the State. In Britain in particular the departure from the 1834 Poor Law provisions was the outcome of the political action of Asquith at the Exchequer and as a Prime Minister in 1908. The British reform first established the principle of an income-tested non-contributory public pension available to all aged 70 or over. Sweden follows suit in 1913 with a pension to all aged 67 or above; in Sweden one part was contributory and one part was financed by the State. It may be appropriate to mention, in these cases too, an ideological influence supporting social legislation, which may help to trace similarities and differences with the German example at the time and also to detect long standing persuasions which do tend to surface time and again under definite cultural and environmental circumstances. The ideological element in question has to do with Fabianism and, perhaps more particularly, with the enormous influence, especially in Britain, of the teachings of John Stuart Mill. Mill's distinction between laws of *production* and principles of *distribution* has a central ideological importance. In J.S. Mill's view it is vital to make "the proper distinction between the laws of the Production of Wealth, which are real laws of nature, dependent on the properties of objects, and the modes of its Distribution, which, subject to certain conditions, depend on human will" and are "liable to be much altered by the progress of social improvement" (Mill, 1981, pp. 255,257). The important implication of this distinction is the following: an advanced society, i.e. a society in which the laws of production have been brought to work almost to their highest perfection, there is scope for concentrating on distribution. Social concerns are thus part of the self-complacency of a well-off society.

On the historical side, important implications on the development of social security systems came first from the Great Depression and from the impact of the second world war. These historic events, however, introduced quantitative, rather than qualitative, changes. This happened in Sweden, for example, in the aftermath of the Great Depression. The case of Britain signals the impact and significance of the second world war.

It would be impossible to understand the development of social security especially in Europe in the last fifty years without taking into due account the threats posed by Bolshevism, Fascism and Nazism. It was in that political environment and under the sense of insecurity generated by the character of the second world war that the assistance principle came to prevail and was developed into the ideology of the contemporary welfare state. At the centre of the stage, as a leading force, of the new ideology is the Beveridge report of 1942, which significantly focusses attention on social security (Beveridge, 1942). The Beveridge philosophy - of which the reform of social security is only one element, albeit of primary importance - is based on two ingredients that it is necessary to recall here. The first ingredient is the notion of *social rights* as a new component of citizenship; social rights imply certain forms of assistance from the State to which the *citizen as such* is entitled. The idea of 'social rights' is developed in the socio-political and economic literature at the time (cp. Marshall, 1963). In the second place, as an ingredient more directly related with social security, the Beveridge philosophy is based on the idea of an *intergenerational compact*, which would be best expressed by the pay-as-you-go method. Current pension payments, in fact, are *not* payments of an income, but *transfers* - either through general taxation or through special contributions having the nature of taxes - to the old of income produced by the young.

The spread of the Beveridge philosophy, for our purposes in this paper, is equivalent to the triumph of what we have termed the assistance principle in a rather pure form. If we turn to our present-day discussions on pension systems and reform, we may easily come to the conclusion that they represent a signal instance of a present-day follow-up of the social rights philosophy. At the time of Beveridge the other side of the moon, so to speak, was well described by Hayek's forceful *Road to Serfdom*. Hayek was respected by many but won little enthusiasm for his own feat. At the level of economic and social philosophy, Schumpeter's rather despondent tone on the inevitable *March into Socialism*, certainly seems to seize the countenance of the age. Today the tables have been turned and, for example, positions favouring the so-called 'basic income' movement are not holding sway. It is important therefore to go beyond the positions of principle and understand how the economic incentives interact, without taking a specific position as to their priority, with those more general principles.

Four points must be made. The *first* point is that at the time of the Beveridge report the transition to a pay-as-you-go principle appeared to provide an extremely appealing solution to the social security problem. The *second* point is that, under the different present-day conditions, the burden of contributions would be increasing without an assignable limit if the Beveridge philosophy were to be applied without constraints. The *third* point is that today the transfer principle as a solution is inferior to the available alternatives in economic terms. Finally, what makes of 'transition' both a need and an

awkward problem is the *asymmetry* in terms of economic feasibility between the Beveridge reform on one side and the path of reform that is likely to enable our systems to reverse the Beveridge philosophy on the other side. This difficulty is emphasized in the current literature (cp. Buchanan, 1986). The transition problem, therefore, lies at the centre of our social philosophy. It leads us to re-define and reformulate our notion of civil society in its relationship with the competitive market (for a classification of the possible regimes of social security with respect to their interaction with the market order, cp. Titmuss, 1974, Esping-Andersen, 1990). Tackling the 'transition' issue today means much more than solving a technical puzzle of our pension systems. It rather amounts to questioning the Beveridge report as a benchmark of our notion of civil society. The difficulty is that, on both sides of the barricade, disposing of the Beveridge approach is very often interpreted as an unqualified recourse to the 'market', without giving due attention to the fact that the market order itself requires the basis of 'civil society' for its proper definition.

The first and third points, just mentioned, are best assessed in terms of the rate of return of the social security contributions. The second point has to do with the position of social security with respect to growth. The last point outlines the great unresolved question of discussing a viable solution. While the term 'transition' suggests the idea that the alternative regime is a clearly recognizable object, in fact this is hardly the case: the need to cope with an unsustainable situation is in practice more prominent compared to the drive to an alternative ideal.

b) *Negative incentives to growth.*

As has been stated above, the mood has now completely changed with respect to the Beveridge philosophy. As one example, we may refer here to the widespread view which asserts that the existence of welfare state provisions in a system can be a source of relative decline, or, at any rate, it can be a barrier to economic growth.

The Swedish Economic Commission, chaired by Assar Lindbeck, has referred to the crisis of the Swedish model arguing that it has "resulted in institutions and structures that today constitute an obstacle to economic efficiency and economic growth, because of their lack of flexibility and their one-sided concerns for income safety and distribution, with limited concern for economic incentives" (cp. Atkinson, 1995, pp. 121-31).

More particularly, if we restrict ourselves to deal with the social security system within the whole set of welfare state provisions, two points seem to be of the highest relevance concerning the effects of the spread of the Swedish model or the Beveridge philosophy (the two are equivalent for our purposes):

1. reducing savings and capital accumulation
2. the creation of public debt.

From both perspectives it is important to focus on the basic character of the current pension systems, which goes in fact back to the 'Beveridge philosophy'. It is part of the 'Beveridge philosophy' that social security should not follow an *insurance principle*, but a *taxation principle*.

More precisely, a payg system, whatever the connection between contributions and benefits, simply defines an implicit 'social contract' between generations. Therefore it is that, behind the arguments on the growth-hampering character of the welfare state, there is very often the thesis that the payg principle is to be held responsible to that effect. That is why it is so often emphasized that reform or transition of pension systems may entail a return to the accumulation principle.

1. Savings.

Social security contributions, much as taxation, reduce savings and capital accumulation. A part at least of the resources levied through the tax/contribution rate would have been saved and would thus have been income passed on to capital accumulation.

The difference with taxation, here, is that the payment is done by one generation or cohort only (the 'young') within the population, while the other generation (the 'old') receive a benefit. Why do not the two contrary flows neutralize each other in terms of their effect on savings, if they are of an equal amount? That happens basically because the two generations have different propensities to consume: equal to one for the 'old', less than one for the 'young'. Of course in the simple Keynesian model or, to that effect, in Barro's model savings would not decrease. However, adopting a life-cycle scheme where savings *are* reduced by social security, we come to view the transition question, in terms of incentives to growth, in the following way: is it invariably a good thing for growth to save and accumulate more? Even the simplest Solow model of growth shows that a change in the saving rate can be irrelevant to the the growth rate of the system. As Atkinson shows, the issue can be discussed in the context of growth theory (Atkinson, 1995, esp. pp. 121 ff.).

2. Debt.

The introduction of payg systems makes social security similar to deficit finance in its effects in crowding out capital formation and creating debt. Let us first observe that the social security paradox (Aaron, 1966), showing the welfare advantage of a payg pension system, is only valid when the sum of the rates of growth of population and wages exceeds the rate of interest.

Take w_t as unit labour earnings at time t , θ the rate of social security contribution, g the rate of growth of the wage rate, n the rate of growth of population, r the rate of interest.

Two expressions must be compared concerning the benefit received by the worker at time $t + 1$, when he has grown 'old':

$$(1) \theta w_t (1+g)(1+n)$$

$$(2) \theta w_t (1+r)$$

Of course

$$(1) >, =, < (2) \text{ according as (approximately) } n+g >, =, < r.$$

If the $>$ condition holds it is clear that all generations gain from payg social security. Otherwise the paradox does not hold. This brings us to consider the issue of population and demographic trends. In a payg system the equilibrium θ must equal total pensions over total wages, i.e.

$$\theta = \frac{\text{pensions}}{\text{wages}} = \frac{\Pi}{\Lambda} = \frac{pP}{wL} = \frac{p}{w} \cdot \frac{P}{L}$$

In other words: if p is the average pension and P the number of pensioners w the average wage rate and L the number of labourers, it is clear that we can express θ as the product of two factors: the replacement rate and the dependency ratio.

This fact has two consequences:

1. the initial steps of a payg system are invariably very easy going. Owing to the low number of pensioners the dependency ratio is very low and this induces legislation to be generous on the replacement ratio.

2. in 'defined benefit' systems the benefit is often defined in relation with wages earned in the final year(s) of the working life. Therefore the replacement ratio tends to be rigid. If at the same time either a) birth rates tumble or b) average lifetime increases, or both, the system may run into trouble: the updating of θ becomes politically unacceptable and pension expenditure comes to be covered by issuing public debt.

Thus 'transition' means changing an implicit intergenerational contract, or changing the mental habit that people are born with a particular set social rights, entitling them to accumulate particular net positive claims against society. It is a matter, as we argue in this chapter, of rethinking our civil society and sense of belonging to a community and making it compatible with a particular budget constraint.

So far we have been considering the unsustainability problem from the viewpoint of the push factors, i.e. of those factors that have made the existing system not viable and therefore in need for change.

There is however a pull factor, as it were, stressing the fact that payg artificially constrains our systems within the low yields range, given by $n+g$ as we have seen, compared to the yields available on the stock market, where yields are often supposed in fact to be safely allowed to outstrip the growth of incomes.

11.3. *Ways of organising the pension system and transition options.*

Most countries have mandatory public systems organised on a payg, defined benefit basis. They were introduced in the 1950s and 1960s with the hyper-inflation between the wars and the second world war in fresh memory. This may be one reason for the choice of payg. Another reason may be the fact that in those days the growth rate exceeded the rate of return in the capital markets, making payg more profitable than funded systems, (see Samuelson, 1958, Aaron, 1966). There are many reasons for reforming the systems today, the most often mentioned being their financial insanity and the expected demographic development with ageing populations, putting extra pressure on the systems. Another reason put forward is the fact that returns in the capital market have long exceeded the growth rate (Feldstein, 1996). Payg systems are also alleged to have negative effects on economic performance, i.e effects on the functioning of the capital and labour markets, impeding growth and causing excess burden.

In this section some of the choices of how to organise pension systems will be discussed and transition possibilities between different designs will be analysed.

Here is a table of contrasting characteristics of a pension system.

Public	Private
mandatory	voluntary
general	selective
basic, means-tested	supplementary
payg	funded
defined benefit	defined contribution
redistributional	actuarial
intra and/or inter generations	
indexing by	
prices, growth rate and/or interest rate, during earnings / contribution period and during retirement / receiving period	

It is often argued that you have to choose the whole menu, i.e. that there should be a necessity to choose between one or the other side in the table. This, however, is a misconception, but some restrictions will have to be put on the mixture to be feasible and efficient. There is nothing to prevent a choice of, for example, a public, voluntary, funded, defined benefit system. But if a payg system is preferred, it has to be made mandatory, be it public or private. The same holds if the intention is to use the pension system for redistribution. An actuarial system can be defined benefit as well as defined contributions, it can be mandatory or voluntary, and so on.

Some of the advocates of abolishing payg systems in favour of funded systems are confusing the benefits reached by this transformation by simultaneously presupposing that other changes in the

design of the pension system come automatically with this change. We are referring to the misconception that a funded system also has to be an actuarial one. A payg system may have an actuarial design just as a funded system may be designed to contain redistribution. The dividing line, when it comes to redistribution and tax wedges, goes between mandatory and voluntary systems. Thus the gains of decreasing deadweight losses in the labour market by tightly connecting contributions to benefits has little to do with the transformation of a payg to a funded system.

We will focus on a few contrasting characteristics: payg versus funded, defined benefit versus defined contribution systems and redistributive versus actuarial ones.

11.3.1. Distribution over the life cycle

The main purpose of a pension system is to secure income and consumption possibilities during old ages. The distribution of consumption over the life cycle is determined by the level of the system. If the system is voluntary the distribution is determined by intertemporal utility maximisation. There are however efficiency reasons for a mandatory system. A system is made mandatory in order to avoid adverse selection, myopia and free riding. If the system forces individuals to "save" more than they otherwise would, i.e. the obligatorium gives a binding restriction on the choice of the consumption path, there will be utility losses which have to be weighed against efficiency gains.

With a given level of the system, the distribution over the life cycle also depends on whether the system is funded or a payg. In a funded system the rate of return is given by the rate of return in the capital market, in a payg system by the growth rate of the economy. Pensions are "guaranteed" by the capital market in a funded system. In a payg system future production "guarantees" pensions, as long as future generations continue their adherence to the system: a payg system may be viewed as an implicit social contract between generations. If it is a mandatory system used for intra-generational redistribution, the individual return may of course be higher or lower than the interest rate or the growth rate.

11.3.2. Effects on economic performance.

Public payg systems are often presupposed to cause a lower growth than funded systems and also to cause inefficiencies and deadweight losses.

One way a payg system may discourage growth is through its effects on capital accumulation and the capital stock. A life cycle approach to consumption and saving gives savings for old age as the main reason for capital accumulation. With a payg system this reason for saving disappears. It deserves mentioning however that in a fully built up funded system with a stable population there is no net saving for old ages; the savings of the active generation are offset by the dissavings of the pensioners. With a certain amount of ageing of the population the dissaving of the pensioners will even exceed the savings of the working generation. In the model used and the empirical work done by Cigno et al. (ch. 10 in this report), not treating fertility as an exogenous factor, quite a contrary result - an increase in savings - is obtained. Whether a payg system results in a decrease in total savings or not is judged to be an empirical question and there have been a number of econometric studies trying to determine the effects.

Feldstein (1974) estimates the savings in the US to be 40% less due to social security system. Munnell (1974) finds the direction of the effect on savings the same as in Feldstein, but significantly less than the result of Feldstein. Barro (1978) concludes that it is not possible to reject the hypotheses that the pension system lowers the saving rate. There is no evidence, however, that this is the case. Transfers between generations are emphasized. i.e. the possible existence of the Ricardo-equivalence. Ståhlberg (1988) shows how sensitive the estimated effect on savings are to the assumptions concerning the alternative way of support in old age. Empirical studies on Sweden, for example, suggest that the saving ratio would have been 1,5 to 4 percentage points higher without the ATP-system during the 1960s and 1970s.

A second source of growth is population growth, or rather, growth of the labour force, which can be broken down into a pure demographic factor, a change in participation rates and a labour-augmenting change in productivity. In all of the industrialised world we have a secularly declining fertility. Economic theory of demography finds a relation between social old-age insurance systems and the declining fertility. The utility of many children is reduced with the introduction of a pension system. (Cigno, 1992, Felderer, 1992. See also chapter 10 in this volume). For this effect to occur it does not matter whether the system is funded or a payg one. However, if an ageing population means greater difficulties in a payg system than in a funded one, this effect on fertility is more devastating to a payg system. It should also be pointed out that with a payg system there is a redistribution from families with many children to families with few children (Breyer & Schulenburg, 1990). This may afford a reason why some plea is made for subsidizing child rearing in payg systems (cp. Augusztinovics, 1995).

Low economic growth, threatening the stability of a payg-system, may thus be caused by the pension system itself. This may occur not only because of its effects on savings and fertility; labour supply will without doubt respond to the rules in the system. Also, some of the growth will most certainly be transformed into leisure time, leisure being a good with a positive income elasticity. This

will impede growth in the 'tax' base and reduce the rate of return in the payg system (cp. Kruse, 1989, 1994, for a discussion of the labour market responses and their repercussions in a payg system).. If the pension system is used for redistribution in the sense that it is not designed as an actuarial one, the contributions become *taxes*. The text book result is *deadweight* losses, greater the greater the labour elasticity. Pension systems are long term commitments, suggesting high labour elasticity.

11.3.3 Introducing and reforming pension systems.

There is an asymmetry in the choice of system. The introduction of a payg system will be a Pareto improvement, because of the increased consumption possibilities it gives to the initial generation. This is one of the conclusions to be drawn from Samuelson, 1958 (if, however, the so-called Ricardo equivalence holds, this increase in consumption will not take place, see Barro, 1974). This holds provided that the system does not impede savings and growth, thus lowering the consumption possibilities of the future generations. But even so there will always be the temptation for each and every generation to introduce a payg-system. The introducing generation will be able to consume both out of an existing capital stock saved for old ages and out of the benefits given by the payg system.

We may distinguish between three different groups in a payg system. The initial generation has a rate of return that is greater than the growth rate, a return that may even tend towards infinity. An example may be given from the Swedish experience. When the ATP system was introduced in Sweden, it was not introduced on a full scale immediately. In the beginning the benefits were low, but so were also the contributions paid, resulting in a very high rate of return. Ståhlberg, 1993, has calculated the benefit/contribution ratio to be 5.9% for those born between 1905-1914, 3.7% for 1915-1923, 2.0 for 1924-1933, 1.2 for 1934-1943 and less than 1% (ca. 0.8%) for the first generation not belonging to the initial ones, those born between 1944-1950. The middle generation(s) have a rate of return equal to the the growth rate. The terminal generation has a rate of return that is lower than the rate of growth and may even tend towards zero.

Up until now the generations in the payg systems have had returns that by far surpass the growth rate. The reason is that the benefits have been increased a number of times without increasing the contributions for those being covered by the increased benefits. This may be thought of as evidence for the so-called Browning effect (Browning, 1975), which clearly has been at hand both in Italy and Sweden (see respective country chapter) as well as in US, according to Feldstein (1996).

From a payg system to a funded one

Changing in the other direction, from a payg-system to a funded system, would, however, hardly be approved of using the Pareto-criterion; such a change inevitably overburdens a terminal generation, who loses the contribution made to contemporary pensioners and thus have to pay double contributions to provide for their own old age as well.

The outstanding difficulty in shifting from a payg system to a funded one is of course the transition period. Is there a way to avoid having to deal with a terminal generation? Gramlich (1996), for example, gives three different ways of reforming the US social security system, two of them resulting in a certain degree of funded systems and all of them comprising tax increases during the transition period.

Buchanan (1986) suggests a solution to this problem, a solution that is very close to the one adopted in Chile. First, let us state the fact that a payg system, being an implicit social contract between generations, entails drawing rights/a mortgage on future production. In other words, the

accrued pension rights of those belonging to today's working generation as well as of those already retired are a public debt (cp. also Feldstein, 1974; Kotlikoff, 1995 and the literature and estimates on 'generation accounting'). Buchanan suggests that this implicit debt is made explicit; for each and every person the value of the accrued pensions rights is to be calculated and an individual account set up, in which this amount is deposited. From that day the capital in the individual accounts is earning interest and new contributions go into the account.

With this proposal, the trick is made by increasing the public debt, thereby increasing the interest payments instead of increasing taxes. Now the interest rate on the increased (or, rather, now explicit) public debt is assumed to be paid by the efficiency gains that result from decreased deadweight losses caused by decreased tax wedges. Here there seems to be a mixing up of differences between a payg and a funded system and differences between a system with redistribution intra a generation and an actuarial one. Buchanan presupposes that a transformation from a payg system to a funded one also means a change to a system with a tight or perfect connection between expected contributions and expected benefits.

Feldstein (1996) argues in a similar way. The fact that the rate of return has been lower than would have been the case had the system been funded from the beginning is maintained to make the financing of the US public payg system a tax. Since 1960 the average annual growth rate of the economy has been 2.5%, while the return in the capital market has been 9%. The difference is said to be a tax, causing excess burden in the same way as any other tax. The deadweight loss is calculated using this difference times the Harberger deadweight loss. A compensated elasticity of the social security pay roll tax base of 0.5 yields in a deadweight loss of \$68 billion in 1995. Hence there will be gains from a reform and such gains are estimated to compensate the transition costs.

The same conclusion is reached by Raffelhüschen & Risa (1995). Using a simulation model for a small open economy (the interest rate and the real wage rate exogenous and determined in the international market), calibrating the model with Norwegian figures, they show that announcement of the reform and responses in the labour market and of bequests weaken the intergenerational redistribution during the transition. In the long-run the welfare gains surpass the losses during the transition fare gains surpass the losses during the transition.

Like many other economists today, Buchanan and Feldstein favour a transition to a funded system and there are strong arguments supporting such a change. There are however risks in funded systems as well. One obvious risk is of course the capital market risk. This is a well-known risk with established ways of handling it: the trade-off between risk and return and a diversified portfolio. A connected risk may be the pressure on the return that will be exercised by the pension fund. Estimates of accrued pension rights in Sweden, for example, today give an (implicit) pension debt of 4600 to 5000 thousand millions SEK, i.e. 3 to 4 times GDP. The capital stock in Sweden, including real estate, is also 3 times GDP. No doubt, if in a funded system the pension fund(s) is playing a leading role, effects on the rate of return should be expected. With international capital markets at hand these risks are of course reduced, provided not all countries turn to funded systems.

From a defined benefit to a defined contribution system

Most payg systems are defined-benefit systems, the benefits being flat rate or based on the loss of income principle with benefits determined by income during the last x years before retirement. Suppose that to be the case and the system is to be reformed to a defined contribution system with individual accounts, fictitious or real. Problems?

Such a reform probably means that the redistribution between social-economic groups or between people with different labour market behaviour, that took place in the defined benefit system, ceases. In a pure defined-contribution system there will be a perfect connection between expected contributions and expected benefits. The contributions will no longer be taxes; thus the reform lowers the tax rate and reduces the deadweight loss. This argument has been used in the Swedish debate in favour of a turn to a defined contribution system. According to Feldstein (1996), a mandatory system means that the contributions are taxes, i.e. the mere fact that the system is mandatory turns the contributions into taxes, even if there is a full connection between contributions and benefits. If we stick to the ordinary definition of a tax as opposed to a fee, a tax is levied without a reciprocal benefit in contrast to a fee. The outcome evidently depends on how people perceive the system, i.e. it is an empirical question too early to be settled.

A change from a defined-benefit to a defined-contribution system affects different generations differently. Suppose that those being pensioners when the reform is introduced remain in the old system and that the young generation, those who have not yet entered the labour market, follows the new system. Those belonging to the working generation have of course adjusted their behaviour to the old system, the effects being more important the closer the retirement day. The Buchanan solution, mentioned above, does not fully solve the problem. Think of a person 50 years old when the reformed system starts. About two thirds of his or her working life have passed. The pension rights accrued to his or her individual account will reflect his or her behaviour adjusted to the old system. This may include part time work during many years, trusting the pension benefits not to be affected as they were calculated in the old system on the wages during the latter part of the working life.

Another way would be to let the old system gradually die. Suppose normal working age is between 20 and 65. A person who is 25 years old when the new system starts will then get $5/45$ of the benefits determined by the old rules and $40/45$ by the new ones. One draw-back is the very long transition period, although the importance of the old system will decrease with every year that elapses.

11.4. *The proposed transitions in Britain, Italy and Sweden*

We consider among the five countries examined in the present report, only the three western economies (Sweden, UK, Italy), which have already implemented or have established the principles on which the new pension system will be based. In those three countries the present pension policies are quite different from those implemented in previous decades. The phase of the extension of coverage and continuous improvement on benefits is over and a new phase of retrenchment and downward revision of pension rights and entitlements has started. However past extensions and improvements are still affecting expenditure and its growth. The object of this paragraph then is to consider how the entitlements accumulated in the public system under the old rules have been treated, which are at present considered to be unsustainable and have been changed for future generations of contributors.

Italy, Sweden, and the UK approach the prospect of transition from very different points of view, which, on one side, mirror different interpretations of the push and pull factors of the reforms and are, on the other side, the result of the different historical backgrounds to the respective pension systems. The UK is the middle of the process and it is now possible to assess the impact of the 1986 reform, through which the public sector has reduced its importance in dealing with the problem of income maintenance for the aged. Pension liabilities are reckoned to represent 0.6% of Gdp. Italy and Sweden have just decided on a reform of the public system, motivated by the unsustainability and generosity of the old rules and by worsening demographic prospects. The accumulated stock of pension liabilities are estimated to amount between 2.5 and 3.5 times Gdp in Sweden and around 2.75 times Gdp in Italy.

11.4.1. The reasons for reform

The push factors find their roots in the historical background of each pension system, in its present performance, in the demographic prospects and in the ideological commitment. Very briefly we summarise here the relevant points, which are better developed in the individual country studies in the present report.

a) Historical background. All the three systems, even if they have come to the present structure from different starting points, have a mix of assistance and insurance principles within the mandatory public system. For example, the system guarantees a minimum pension to contributors; the pension is earnings-related. Sweden and the UK had, since the beginning, a National Insurance basic pension, where benefits and contributions were flat rate for all workers; to that an income related supplementary pensions was later added. The basic pension was meant to represent, at the end of the 1970s, 20% of the average male earnings in the UK. Its value, being kept constant in real terms, declined with respect to average earnings. As a result of the real growth of the latter, by 1994, the relative value of the basic pension had fallen to 16%. The minimum was significantly higher in Sweden, where it represented between 30-35% of the average income in 1994. In the UK the supplementary mandatory part of the pension is mainly privately managed and funded; in 1975 a public, mandatory, payg, earnings-related fund, the SERPS, was launched, for those who did not belong to any privately managed occupational pension scheme. The benefit from the supplementary scheme was initially intended to increase the basic benefit by a maximum of 25% of the average revalued earnings after 20 years. In Sweden the supplementary earnings-related pension scheme (ATP) is public and mandatory, payg with a buffer: it has added on average to the basic benefits approximately 30% of the previous income; some 10% of negotiated pension may be added to it, which is particularly relevant for high earners as there is a ceiling on benefits in the public system. Italy has mainly a public system where the two elements of the benefit (basic and supplementary) are not distinguished: the entry pension is a function of the pensionable income (last x years' incomes) and of the accrual rate multiplied by the years of service, provided that the pension is above a certain minimum. That minimum is approximately 30% of the average male earnings; integration to the minimum is means-tested.

As a result, in 1994, in the UK, Sweden and Italy almost 100% of the working population are enrolled in a public pension scheme. In Sweden 80% of the pensioners receive a supplementary pension, in the UK 27% of the working population are members of SERPS; supplementary pensions are either voluntary or occupational for a minority of workers in Italy. The proportion of privately funded individuals is very low (3-5%) in Italy and Sweden; on the contrary in the UK the proportion is above 50%. Almost all pensions in the mandatory schemes (both privately or publicly managed) are paid in the three countries according to defined-benefit criteria, so that the income-maintenance aim provides the guiding principle. General taxation covers about 50% of the basic pension, and 24% of ATP in Sweden is covered by interest earned by the fund; it covers the deficit of the public schemes in the UK (about 10% of the expenditure). In Italy general taxation covers the general support to the employees' public schemes, fixed by the law, or approximately 15% of the expenditure; general

taxation also covers the contribution cuts corresponding to early retirements and unemployment benefits (5.5% of the annual expenditure): all together general taxation then covers about 22% of the pension expenditure for private employees. Again in Italy the state support for farmers is comparatively much higher and covers approximately 90% of the farmers' pension expenditure.

The separation of assistance from insurance has not been seen as the main aim in the Swedish and British reform, where a basic income continues to be part of the public pension system; partly financed by general taxation, the level of the minimum is guaranteed in real terms and is not indexed to real earnings. The Italian system had mixed up things to a larger extent and the reform has correspondingly been more radical: redistribution to the worse-off has to do with welfare policies, which are not financed by the mandatory pension system, but by a special national program.

b) Major inefficiencies of the systems. Italy and Sweden have the highest level of public expenditure for the aged over Gdp and the worst prospects for the equilibrium rate in the long run. The relatively high degree of protection and the weak connection between contributions and benefits favours those in dynamic careers and encourages leisure time. The subsidisation of leisure time occurs in different ways: in Sweden the short period of contribution was incentivated by the ceiling on the accrual rate after a certain number of years of contributions; in Italy the same kind of incentive operated by allowing people to retire earlier than the legal age with a low requirement in paid contributions. The high level of unemployment had also a major impact on the decision to retire young and receiving a pension. The introduction of an actuarial fairness principle in Sweden and Italy was thus seen as the solution to the inefficiency. The introduction of a flexible age of retirement with a demographic coefficient in the formula increased the freedom of choice of individuals concerning the age of retirement. This approach has been more extreme in Italy, where most welfare and assistance provisions have been removed from the social security schemes. The Swedish choice has been less radical: the shift has been from a public, payg (with a buffer), defined-benefit system with a minimum-income guarantee to a public, payg, defined-contribution, partly funded system, again with a minimum-income guarantee partly financed via general taxation. In the UK the financial unsustainability of SERPS was seen, at the time of the 1986 reform, as the major problem of the public system; opting out was encouraged and the accrual rate of SERPS was reduced from 1.25% to 1%. However in that way the main problem, i.e. the relative poverty of pensioners, has not been tackled.

c) Demographic prospects. The long run demographic prospects are quite uncertain. Fertility rate can fluctuate even in the short run; migration flows are dependent on economic and social factors. The demographic forecasts elaborated by national bodies, moreover, are based on different assumptions. The results, however, even if not strictly comparable, are quite reliable as far as the direction of change is concerned, particularly for the next twenty years. The ageing of the population will be comparatively much more relevant in Italy, where the dependency rates of the aged above 65 are foreseen to rise by the year 2030 up to 28% (the increase will be of 12 points from 1994). The corresponding figure for Sweden will be a much less striking 22%; the increase also will be less

dramatic over the same period (4.5 points). In the U.K the dependency rate is expected to reach 20% in 2030, with a 5 percentage points increase.

d) The ideological commitment. The ideological opposition to State interference in private financial planning was particularly strong in the UK, where opting out and personal pensions plans were encouraged with the reform of 1986. The problem of old age income security is left to the individual choice and to the market. The superiority of funded versus payg systems whenever $r > g+n$ has been explicitly taken as an argument for the a downsizing of the public payg system in Sweden and for the promotion of a completely funded schemes. Ten percent of the contributions will finance the funded schemes and there will be free choice whether to place the money in the hands of the State or in the hands of private competing agencies. In Italy the superiority of a privately managed funded scheme was not considered as a relevant point: the private occupational funds are incentivated by lower taxation, but remain so far on a very small scale.

11.4.2. The long-run expected outcomes of reforms

The reforms are expected generally to reduce or stabilise in general the expenditure on public pension over Gdp, even if the proportion of the aged will increase as a result of several changes: on coverage, degree of protection, age of retirement. Generally the macroeconomic assumption however are exogenous and do not consider the impact on behaviour of the changes introduced for the individuals in the labour markets and in retirement decisions (e.g. choice of retirement age and of invalidity pensions). Ideally the behaviour of individuals should be endogenized, particularly when, as in the case of Italy and Sweden, the freedom of choice of individuals as to retirement age has been increased.

The expected outcome in terms of expenditure and budget equilibrium are then only indicative and will need periodic revisions, which are likely to afford scope for new corrections.

As far as expenditure is concerned the national estimates show in 1994 the following.

- In Italy and Sweden the stabilisation and possible reduction of the pension expenditure over Gdp will occur as a result of an increase in the age of retirement (and/ or of the utilisation of the demographic coefficient) given the assumption of an unchanged behaviour. The separation of social insurance from assistance will reduce in the Italian case the proportion of expenditure on pension schemes financed by general taxation. That separation does not however necessarily imply that the poverty relief for the aged will require a relative lower public expenditure; that will depend on several factors, among which labour market behaviour. In the case of Italy the contrary might occur: higher flexibility and a lower degree of protection for self-employment might in fact induce an increase in the proportion of those who will not be able to accumulate enough capitalised contributions to reach a pension above the social minimum.

- In the U.K the reduction of expenditure is the result of the reduction of the relative amount of basic pensions and of the accrual rate in SERPS decided in 1986.

- The aged will receive in all the three countries their income from a wider range of sources than at present; in particular a higher proportion will come from privately managed mandatory occupational funds: 10% in Sweden, 15/23 % in the UK; 10-15% in Italy as the sum of mandatory professional funds and of voluntary occupational schemes.

11.4.3 The transition

As can be easily understood, the prospect of transition is completely different in the case of a massive privatisation (UK) compared to the cases of Sweden and Italy, where rules have been changed in the public system in order to make it work according to an actuarial fairness principle. The definition and the extension of acquired rights is dependent on age (Sweden) or dependent on the time when the contributions were made (Italy and UK). The result is that the transition is a very long process, with the old system still working in full to compute the benefits for the next 20 years or more.

Very considerable differences on the replacement rates at retirement will then occur in Italy and Sweden between those who are aged 40/45 and those who are aged 35/40. The main differences arise from the utilization of life expectancy estimates in the calculation of the pension. As changes are more radical with the Italian reform, the differences between generations (in particular between those who benefit from the special rules of the transition and those to whom the new rules entirely apply) will be more relevant. A very long period during which multiple rules are applied has been adopted in the UK with the reduction in the accrual rate in the SERPS: those retiring before 1999 are unaffected by the reform. For those retiring after 1999 a pro-quota criterion is applied and pre-reform contributions are credited according to pre reform rules, contributions paid post-reform are credited according to the post-reform rules. As a result the new SERPS pension scheme will reach maturity only in the second part of the next century.

* The pensioners receiving a pension with the old rules will, however, not share the dividends of real growth after retirement in Italy and in Sweden. In the UK the reform of indexation of the basic pension was decided before the reform of 1986 and it has contributed powerfully, as already mentioned, to reduce very quickly the replacement rate at retirement and the dimension of the public sector involvement dealing with income guarantee in old age.

* In Sweden the building of the second pillar by reducing contributions to the payg system is likely to create a problem to the financing the transition. The buffer fund in ATP, which was accumulated during the introductory phase of the system, will have to be used.

11.5 *Final Remarks.*

Some of the upshots from the transition chapter are summarized here.

What follows concerns *mandatory* social security. *Transition* is a general term which refers to the passage from a set of characteristics to another set of characteristics of a pension system. A full list of contrasting characteristics, with respect to which transition can be defined, is given in the chapter itself. The text makes it clear that, in practical terms, only a few contrasting characteristics are relevant, namely insurance vs. assistance, defined contribution vs. defined benefit, funded vs. payg. We argue that the last couple of characteristics, although it is so very often talked about, does not constitute the ‘heart of the matter’, as it were, in discussing actual transition processes. In particular, while the introduction of a payg system is a Pareto improvement, the change in the opposite direction can hardly be approved of on the basis of the Pareto criterion. Arguments in favour of a transition in the latter sense, although very popular, are based on highly hypothetical assessments of the efficiency gains from the exercise and underplay the significance of capital markets risks. In particular, it is sometimes too lightly assumed that equities systematically outperform bonds by a significant margin. This fundamental asymmetry makes today a transition from the current payg method to the principle of funding social security a passage very difficult to be accepted and put in practice, particularly in those countries where the public payg system cover the majority of pension entitlements.

Current transition problems, we argue, arise from a different source. First and foremost they arise from the fact that current systems are no longer viable. Current public systems have to change the implicit social contract on which they are based for future generation of pensioners, while the present generation of workers (or the future generation of pensioners) have to cope with the commitment of maintaining the promises implied by the past rules to new pensioners. Manipulation of current payg systems has meant *confounding insurance and assistance* together and powerfully contributing to make current social security systems unsustainable.

We argue that social security should be based on contributions and should follow the insurance principle, while social assistance should be financed by taxes and should be based on welfare principles. In other words a useful benchmark, against which assess transitions taking place in practice, is not merely the passage from public payg to private funded system; it is much more usefully provided by the passage to a *defined-contribution actuarially fair* system, as the objective to which the transition process should lead.

In practice, this statement must be supplemented by the following considerations:

- a) the system should be designed under the constraint that, when in full operation, its budget balances within a cohort (or, more restrictively, within each single year)
- b) the system should enable all participants to enjoy a pension income at least equal to the poverty threshold, thus including a limited intra-generational redistributive (assistance-welfare) element;
- c) the system should contain no negative fertility bias. Since a pension system is in itself a disincentive to fertility, the system should be injected with antibodies as countervailing forces to that bias;

d) the system should not discourage private saving.

The above seems to be what present systems need to achieve: in that light current transition processes can be interpreted as modes to reach in practice a mix of efficiency and fairness under a viability constraint. Of course the essential issue in the criteria and design of the transition lies in the judgment of fairness and in the decision on who is going to bear the cost of the transformation: whether the new generation of pensioners should receive less than promised (lower than expected benefits), or whether the future generation of pensioners should pay more (higher contribution for given promises). If we can assume that under the transformed system contributions are no longer perceived as a marginal tax, than the transformation will produce efficiency gains and the present generation of workers may receive more by obtaining a higher rate of return on their contributions. The cost of the transition may be worthwhile even to the present generation of workers. More efficiency may mean reduced disincentives to labour supply or fostering new savings. One possible way of conceiving of transition process, under conditions that appear to be realistically suggested by the analysis of the experience of the Western countries in the present report, is that the perverse incentives can be turned into right incentives without having to bear the heavy costs and the higher risks entailed by a reversal to a fully-funded system.

Looking at the Italian, Swedish and UK experiences, we can see three different ways according to which the path toward a more viable system has been designed, also entailing a different relative size of the public agency in pension management. The Italian case has been to move from a payg, defined benefit, public system toward a public, payg, actuarially fair (at the individual level, or 'pure'), defined contribution system. Virtually most of the negative incentives to the labour market have been removed by removing most welfare and assistance provisions from the social security schemes. In the trade off between efficiency and equity in the public pension system greater weight has been given to the former. Redistribution is the job of the fiscal system and not of the pension system. However, the high level of the promises of the existing system and the sanctity of acquired rights have induced the Italian legislator to design a very long transition process with little equity among cohorts during the course of the transition. This generosity will be financed partly via general taxation and partly by imposing on several generations of pensioners a reduction in the level of indexation. The cost of the transformation is then shared by all the cohorts in different proportions. In principle then the gain in efficiency in the labour market could give rise to higher rate of returns for future pensioners, although the higher level of taxation (higher in relative terms toward present-day workers) may somewhat reduce these benefits.

The Swedish choice has been less radical. The shift is from a public payg (with a buffer), defined benefit with a minimum income guarantee toward a public, payg, defined contribution, partly funded again with a minimum income guarantee partly financed via general taxation. Disincentives to labour supply have been reduced, though not completely eliminated in order to preserve some redistribution to the worse-off via the pension system itself. Efficiency gains are expected, both from the labour market and in the longer run from a rise in savings. Compared to Italy, the sanctity of acquired rights has been less radically preserved. Even if transition continues to be a very long

process, the difference among cohorts in their degree of protection is moderate and financed by the fund accumulated in the past under supplementary rules (so-called ATP), so that in the short-run the increase in total savings is not certain.

The case of UK has to be seen in a different perspective: the public sector has acquired a decreasing importance in dealing with income security in old age. The transformation induced by the 1986 reform had as its main objective further to reduce public intervention and strong incentives have been established for personal saving funds. The system is projected then to have a lower payg proportion: the transformation implied then partakes more of the nature of a passage from a public payg to a private funded system. The British case embodies, to a larger extent, the so-called three-pillars philosophy. Results have been so far an largely disappointing, with an increase in the level of poverty of the old and the cost of the transformation having fallen so far on the current generation of pensioners.

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