

---

# Long-term uncertainty and social security systems

---

**Jesús Ferreiro and Felipe Serrano**

University of the Basque Country (Spain)

**The New Economics as 'Mainstream' Economics**

Cambridge, January 28 – 29, 2010

---

# Introduction

The analysis of the social, economic and political effects of the ageing process that is currently taking place in the developed countries, mainly in the European Union, is a matter of great significance. Special attention is paid to different economic effects of ageing: among others, the consequences on the economic growth generated by the lack of labour force; the role played by immigration as a tool to offset the fall in domestic population and the impact of ageing on public finances.

One of the fields of research more intensively studied is that of social security, mainly, the future of public pensions systems

Mainstream analyses, and reports from EU institutions, are based on this causality relationship:

Ageing process → Higher pension expenditure → Sustainability problem → Change of pension system

---

Three lines of reform have been proposed to face this problem:

- ❑ The substitution of current PAYG (unfunded) systems by funded pension systems
- ❑ The introduction of parametric reforms in the current unfunded systems (rising social security contributions, eligibility requirements, amount of pensions, retirement age...)
- ❑ The creation of a mixed systems with two pillars: a part of social security contributions would be capitalized (funded pillar), and the rest of contributions would go to a PAYG system (unfunded pillar)

---

This reasoning hides a number of implicit assumptions, some of them are false or unrealistic, as far as they are based on neoclassical general equilibrium models, and, therefore, they do not consider the main information problems faced by individuals in the real world.

---

# From ageing process to sustainability problems

For an ageing process creating a sustainability problem, some conditions must be fulfilled:

- Ageing process is not offset by immigration
- Ageing process (increase in number of retired people) is not offset by higher activity rates
- Higher pension expenditure is not offset by productivity growth
- Social security contributions remain constant due to problems on activity rates and potential growth from higher contributions

---

# From sustainability problems to radical reforms

The basic argument here is the implicit assumption according to which funded pension systems are not affected by the problem of ageing.

Moreover, neoclassical analyses argue that changing from a PAYG to a funded pension system would also have a positive impact on saving-investment, labour force, and, consequently, on potential output (level and growth).

---

---

# Pension systems and ageing process

The existence of an ageing problem does not justify a change from an unfunded to a funded pension system. The reason is that both PAYG and funded systems are negatively affected by this process.

All pension systems (PAYG and funded) are redistributive mechanisms that transfer incomes from the active working population to the retired population. In PAYG systems, the income transfer is explicit and visible: through the payment of compulsory social security contributions and the pension benefits. In funded systems, the transfer is made in an indirect way: retired population owns real and/or financial assets that allow them to get a part of the current income generated by the working population, through the payment of interests or through the sale of accumulated assets. Consequently, in both systems pensions depend on national income, that is, on the rate of economic growth. If the economic growth halts, the volume of income to be distributed will fall and the pensions, regardless the system, will fall. On the contrary, if the economic growth is high, there will be no reason to worry about.

---

The question is whether one system deals with the problem of ageing better than the other.

In open economies, both systems can appeal to foreign transfers, seeking the needed income outside the domestic borders.

The immigration, in the case of PAYG systems, is difficult that solve the financial problems from ageing: inflow of foreign workers could not be high enough; skills of foreign workers could be lower than those of domestic workers, thus affecting productivity and the rate of economic growth; problems of social integration...

In the case of the funded systems, the solution would be the foreign location of the domestic saving, mainly, in countries with a demographic pattern opposite to those of developed-aged economies.

The allocation of savings abroad should take place in developing countries. However, it is very difficult that these economies have the required high and safe profitability that attract a substantial share of our retirement savings. Moreover, this also involves the existence of efficient domestic and international capital and financial markets. The current financial crisis and the global imbalances have clearly shown how unrealistic these assumptions were: on the one hand, capitals flow uphill from developing to developed countries; on the other, the current crisis have been generated by inefficient capital markets located in developed economies.

---

# Pensions systems and economic activity

For neoclassical economics, public (PAYG) pension systems have depressed the rate of national savings and, subsequently, the investment and the rate of economic growth. The ultimate effect of these systems has been a lower welfare than the one that could have been reached with private systems based on individual savings-accounts. Funded capital accounts would improve economic performance and welfare.

This relationship is open to a number of criticisms. The way to calculate the optimal rate of saving is through a process of individual optimizing inter-temporal allocation process of life resources. Individual have rational behaviour and rational expectations. Consequently, the economy reaches an equilibrium level of activity, with an optimal savings rate.

Besides, in neoclassical economic models the aggregated supply is the dominant economic variable. Investment is constrained by the volume of savings: higher savings are automatically transformed in higher investment. In these models, the market economies do not face any long-run demand-side constrain. The aggregated demand is automatically adjusted to the changes in the supply. In the long run the economy will always be in an equilibrium.

---

In this framework, the change from PAYG systems to a funded system will increase the savings and the rates of economic growth.

In real world there is no guarantee that this outcome takes place. The outcome could be a re-composition of the different motives of saving, keeping constant the aggregated rate of saving. This rate could also fall as a consequence of the myopia of the individuals. But, even assuming an increase in the rate of saving, this increase would be transitory, lasting until the new system matures. In that moment, the disaving of the retired population would equal the saving of the working population, changing the initial outcomes

An increase of the saving rate, besides, does not automatically lead to an increase in investment, because the latter depends basically on the profits expectations and not on the current supply of loanable funds.

---

---

Furthermore, a simple national income accounting shows us that:

$$(S-I) + (T-G) = (X-M)$$

and,

$$S = I + (G-T) + (X-M)$$

Higher savings will lead to higher investments if and only if  $(G-T) + (X-M) = 0$ . If the increase in savings does not come with an equivalent increase in investment, the higher rate of savings will necessarily come with a higher public deficit and/or with a surplus in the current account and with a deficit in the capital account.

In the first case, the higher public deficit involves a fall in public savings, thus reducing the impact of the increase of private savings on total national savings, the relevant variable. Furthermore, in the long run, the higher public deficit can lead to higher taxes, reducing private savings.

---

If higher savings do not come with higher investment and/or higher public deficit, they are associated with a higher current account surplus and a higher deficit in the capital account. The economy will become a net capital flows exporter, and, in this case the economies with lower savings will be those who will benefit from the higher capital supply.

In the absence of a public deficit, a higher saving rate will generate a lower interest-profitability rate. In an open economy, this can only be avoided if the increasing savings are exported. The higher savings does not result in a higher investment (and economic activity) but in a capital outflow.

---

# Information problems and social security

The debate about the relative effectiveness of the different models of social security and pensions can not be inferred from the existence of an ageing process or a presumed financial unsustainability problem.

The debate must be based on the analysis of the respective capabilities of alternative systems to provide a sufficient income to retired population. This notion of 'sufficient pension' involves the definition of an standard of life-consumption socially acceptable

This analysis must consider:

- that individuals do not have instrumental rationality (assumed in life-cycle models), and
- the information problems, mainly, fundamental uncertainty, faced by individuals, not only the problems of asymmetric information included in neoclassical models

All these constraints affecting decision-making processes generate adjustment costs to guarantee the sufficient pension. Therefore, the best system is the one that minimize these costs.

---

# Managing the costs of information problems

The main objective of any pension system is to provide retired population with a sufficient pension that allows them to maintain a socially acceptable standard of consumption-income. Individuals must have, at any time (during the periods of working-life and retirement), the maximum certainty about the existence of the needed resources to finance their of consumption during the retirement period.

The challenge of providing a sufficient pension in an stable and predictable manner faces the problem of the impossibility to forecast the future because the non-stationary nature of the world in which we live.

Any pension systems faces two related problems: the anticipation of the future value of the relevant variables, and the correction of the estimation errors, which lead to the existence of costs. ***The capacity to minimize these costs is what makes one system better than the other one.***

These costs can arise during the period of gestation of the benefit (during the working life) or during the period of use (retirement). In the first period, the costs arise in the funded system when the true rate of return is lower than the expected one; in PAYG system, when the conditions required to get a pension change. During retirement, the risks are the same for both systems: the longevity risk and the risk of unanticipated inflation.

---

# Risks during retirement period

Insurance is the traditional way to protect against risks. Insured agents transfer their individual risks to the whole insured population, thus sharing the risk. If grouping is the optimal way to minimize the costs from events that can not be estimated, the PAYG system has clear advantages over funded individual accounts. The former keeps the essence of the classic insurance: workers cover the risks faced by retired population.

The cost of the cover of these risks is very low because of the scale economies resulting from the large numbers of people covered. This issue is specially significant in the case of the risk of increasing longevity. In the case of unanticipated inflation, the current PAYG systems can easily increase pensions because of its method of finance: if wages are indexed to inflation, social contributions revenues automatically increase.

The current private markets offer solutions to the longevity risk through annuities (but not for inflation risk) but their price is very high. The usual explanation for the small size of the individual annuity market is the adverse selection problem. Mandatory insurance could partially solve the problem of adverse selection, and hence reduce the price of annuities. However, mandatory insurance does not remove all the problems related to the existence of adverse selection. Moreover, it could lead to perverse transfers from low-income to high-income population because of the correlation between life expectancy and income.

---

# Risks during working life

In funded systems, two information problems affect individuals' decisions about their savings decisions related to the retirement motive. The first is myopia: by not incorporating the future in their resource allocation decisions, individuals might not save for the future. The second problem is bounded rationality: since individuals may not possess the skills and ability to perform the calculations inherent in devising a saving plan, their contributions to their pensions plan might be inefficient.

Mandatory insurance is related to the problem of myopia. When PAYG systems are changed by private pension funds is proposed, the only possibility to avoid that people have a pension during their retirement (in case of a legal retirement ages) is making private pension plans compulsory.

Bounded rationality makes individuals uncertain about whether their contributions to their pension plans allow to finance the desired consumption path during the retirement. Another problem happens when the individuals must adjust their contributions when there the effective return deviates from the estimated one. If profitability is below that needed to guarantee the pension target, individuals will have to rise their contributions. One alternative option would be to extend the period of working life. If the rate of return is higher than the planned one, individuals should reduce their contributions to avoid an excess of savings, that is, a level of consumption too low. In any case, individuals should know exactly the size of the required adjustment.

---

---

These problems could be *partially* corrected if the State sets the ranges of mandatory contributions according to the changes occurred in the financial rates of return. This kind of intervention is similar to compulsory setting the rate of household savings.

This solution would only work if individuals have time enough to react against unexpected events. If this is not the case, any sudden (downwards) gap between the true and the planned rates of return will lead to a loss of welfare during the retirement period or to an increase of working life above the planned age of retirement. This problem is more important for those workers close to the retirement age because the room for adjustments is smaller. The problem will not be serious if the deviations are small. Nonetheless, any financial crisis that happen in those ages can ruin the efforts made during the working life.

---

# Expectations, uncertainty and social security

## systems

Neoclassical economics has analysed the impact of pension systems in terms of the consequences on the possibility to reach an equilibrium outcome. Since PAYG pension systems are less efficient than private funded systems, the former deviate the economy from the optimal equilibrium outcome, thus involving costs in terms of economic activity and individual and welfare.

This analysis is based on a set of assumptions, among them, rational expectations hypothesis. However, the existence of uncertainty, makes that the neoclassical equilibrium disappears. The resource allocation decisions are not optimal and the individual are not automatically co-ordinated. The causal relations among variables are not stable and the agents' capacity to predict future events or outcomes disappears, mainly in the long-run.

In this scene, institutions become key elements in the analysis of the economic process and in the decision-making processes. Institutions generate relevant information for the decision-making processes helping to stabilize the long-term expectations by providing information about the future. Institutions allow to stabilize the causal relations among economic variables and agents. Thanks to this information, individuals can incorporate the future in their current decisions, making decisions about make intertemporal resource allocations.

---

These stable relations give agents the capacity to forecast and, therefore, to study the future on the basis of probabilities. However, this does not mean that a neoclassical equilibrium can be reached. The economy is not always in equilibrium, that is, the causal relations among variables are not always stable. Furthermore, not all the equilibrium-stable states are *socially* acceptable. Whether the final outcome is efficient or not, is a problem related to the notion of efficiency we use, a notion that must be defined in the normative field.

In any case, what is relevant for our analysis is that the current economic outcomes are dependant on the type of institutions existing, and that, therefore, these institutions have contributed to forge the causal relations existing among agents and economic variables.

Public pension systems have been in existence during more than a century. They have helped to shape our current consumption and saving patterns since they have helped individuals to make accurate forecasts about key elements for decisions (the age or retirement, the years of working life, the existence of income during the retirement or the value of this income). We can not make a counter-factual analysis wondering what would happened if social security systems had never existed.

---

The certainty about the availability of future income provided by social security may have reinforced the relationship between current disposable income and current consumption. Moreover, these systems have also shaped the current dominant pattern of consumption and savings in developed economies. They have fostered the consumption of the population, both during the period of working life and during the period of retirement, by generating stable expectations about future income. Obviously, stability of long-term expectations has not only been generated by Social Security systems. Welfare State and macroeconomic policies have also contributed to this stability.

In the short-run, the stability of the long-term expectations has favoured the expansion of the demand, helping to the expansion of the investment and the rates of economic growth. This, in turn, has favoured the implementation of stabilization policies needed to correct the short-term disequilibria. This kind of economic policy is only effective if the causal relations among variables are stable and predictable. This stability only exists with stable long-term expectations.

The safety net provided by a funded system, because of its higher adjustment costs, is lower than that provided by PAYG systems. The individual accounts require permanent adjustments during the years of working life because of the deviations between the planned and effective rates of return. In the absence of compulsoriness, the adjustments may be partial. Moreover, there would be a closer relationship between the business cycle and the fluctuations in the financial system. Financial wealth would be a more determinant element in the decisions made about consumption and saving in each period, and, thus, private consumption would be a less stable expenditure. As far as the different elements of aggregate demand are volatile, stabilization policies would be less effective.

---

# Conclusions

- Neoclassical economists argue the substitution of PAYG public pension system for private funded systems because of the presumed better micro and macroeconomic outcomes of the latter, and their capacity to face risks arisen during the working life and the retirement period of the beneficiaries.
- These conclusions are not justified by theoretical or empirical analysis. First, the true rates of financial returns are lower than those used in many studies. This fact, joined to the higher administrative costs of private funded pension systems, makes the presumed higher profitability of private pensions implausible. Second, the capacity of PAYG systems to face risks (like inflation or ageing processes) is higher than that of funded systems: the capacity of the latter systems to face those risks depends dramatically on the compulsoriness of the insurance, and, consequently, on the public intervention in the determination of the benefits and/or the contributions. Third, the presumed positive impact of funded systems depend on their capacity to increase the rates of savings and investment and working population. These effects, however, are not straightforward.

- 
- Moreover, we can not forget that institutions, Social Security among others, Institutions help to reduce uncertainty, to stabilize long-term expectations and to co-ordinate individual behaviours. The current Social Security and public pension systems have been helping agents to plan their consumption and savings. A radical reform in these systems would remove the capacity of agents to make these decisions. The rising uncertainty generated by these reforms well can lead to a less efficient outcome than that generated with the current systems.
  - Institutions, in general, and Social Security (pensions systems), in particular can not be evaluated-analysed in term of their contribution to an (fictitious) market-clearing (equilibrium) outcome. This analysis must be made in terms of its contribution-capacity to satisfy other objectives, in this case, the capacity to provide, in a safe-certain-foreseeable manner, individuals with a sufficient level of resources-income during the retirement period.