

# Dynamics of transition to universal tax-funded pension system

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## Abstract

The mainstream policy debate on the issue of pensions is focused on the dipole between “privatization” according to the capitalization system and “trilateral funding”, where the reasoning of restitution and of capitalization often co-exist. Both perspectives, however, are quite sort-sighted: the pension system is perceived as a closed system, without major interactions with the economy.

Mainstream accounts are also subjugated by the anxiety over the impact of demographic dynamics (also perceived as a closed system) and “fund viability”, as well as by a certain value set with the following key elements: link of the right to pension with past paid employment, unidirectional character of inter-generational solidarity, treatment of contributions as part of labor compensations (and hence part of the wage cost) and not as tax on paid employment (labor).

A radically different approach is proposed here. Pension is not treated as a result of savings, but as a right to decent active retirement and part of a guaranteed income system. Contributions are regarded as taxation on labor.

The impact of the transition to a universal pension system (possibly income-tested) is examined under a broader set of socio-economic performance, such as fiscal burden and employment.

The core structure of a model of and universal pension system the results of the transition to it (fiscal burden, tax revenue, and employment) are presented. Results were drawn from a system dynamics simulation, based on the data of the Greek economy (demographic forecast, pension system rules etc.) It is shown that the transition to the new system would be beneficial in terms of fiscal burden as well as employment.

**Keywords:** pension system, universal pension, system dynamics, employment, lean thinking, 30 hour-week, Greece

**Jel classification:** H55, J3, Q00

## 1. Introduction\*

Pension systems are at the forefront of policy debate and intervention. The key objectives addressed are: “to prevent old age poverty, to enable pensioners to maintain their previous standard of living and to promote solidarity within and between generations...” while “...adapting their pension systems to more flexible employment and career patterns” (Schludi, 2005), but at the same time to reduce the burden on government budgets (Council of the European Union, 2010) raising questions on the feasibility of stated social objectives (Schludi, 2005). Solutions are most commonly sought along the lines of increased contributions, reduced benefits and rise of statutory pension age. The threat most often stated as a key issue is that of demographic trends towards an aging society. Links to other issues, such as employment, are considered practically marginal in the dominant debate (OECD 2011), although they are emphasized in policy documents: e.g. “raising employment rates and productivity” (Council of the European Union, 2010).

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\* I am obliged to Michael Agorastakis for his help with demographics, Leda Zeliou for work on earlier stages of this project and Spyros Lazarou who assisted with model runs in many instances.

Until now all attempts of reform have accepted the structure and the dominant logic of the system, i.e. that pensions should be the result of working time contributions and that the state should only provide support for low incomes<sup>1</sup>. The approach adopted here is more holistic. The pension system is considered as part of the tax system. Its impact on economic activity, more specifically on consumption and employment, is considered in a dynamic fashion. A system dynamics model is built, in order to achieve this<sup>2</sup>. The model is based on the Greek case.

The results show that the dominant logic may be challenged with substantial benefits for employment as well as fiscal policy. The sensitivity of the model against various assumptions and policy options is examined.

## **2. The boundaries of Pay-As-You-Go systems**

During the last couple of decades, pension systems in western societies have been at the center of policy initiatives that have failed to fulfill the mandate for sustainable provision for citizens after their working years. Pension funds have been established for the operation of contribution-based systems, managed either by the state or privately. Most operate as Pay-As-You-Go (PAYG) systems, i.e. the currently employed provide the funds for current pensions. Few operate as purely insurance-like systems, but most are supported or guaranteed by the state. The first are vulnerable to demographics, while both are exposed to high unemployment as well as investment and economy related risks. During the last twenty years, most European countries have made attempts at reducing the fiscal burden due to pension obligations, with poor results (OECD, 2011).

A deeper look is required in order to comprehend the reasoning and operational necessities governing the evolution of the system, which led to its current state and its failures. While the historical conditions that characterized the context of this process are beyond the subject of this work, it is important to highlight the most salient aspects of this process. Modern pension systems are the product of an evolutionary process that has taken place mainly during the 20<sup>th</sup> century. Pensions have been a critical element of the historic phase of the postwar social contract; still they were the result of long struggles – which may be traced back to the previous century – and were not concluded all at once. As part of the social negotiation, the consensus reached was actually a compromise that excluded significant parts of society, most notably women and the unemployed. This compromise was engulfed by the ethics based on the principle that ‘labor had to be compensated’ and an accompanying rule of justice that was based on an analogy to the return on investment (ROI). Starting from different principles almost all countries run a pension system that combines “insurance-like” (Overbye 1994) earnings-related pensions (funded mostly by wage-based contributions, but usually also tax funded) and pension supplements (tax-funded and usually means tested)<sup>3</sup>. The dominant mode of thinking has been characterized by a common set of principles and values: “normal” pensions are intended for those that have worked; income maintenance has been a key principle from the onset; the state supplements the system, so the aim of should be to minimize the burden on gross wage expenditure and on government budgets. Pension supplements are intended for that part of the population not employed (at all or for sufficient time), thus not participating in contribution based systems.

As Hletsos (1993) and Robolis and Hletsos (1999) argue the crisis of the pension system, and the social insurance system in general, is inextricably linked to the crisis of the fordist mode of production. A key factor is the dissolution of the key role of full time wage labor, a

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<sup>1</sup> For a brief chronology of the policy initiatives on the Greek system see Tinios (2010, pp. 263-264)

<sup>2</sup> There are very few such modeling attempts. Petrides and Dangerfield (2004) also developed a system dynamics model, but examined a policy at the opposite direction of a system fully funded by contributions.

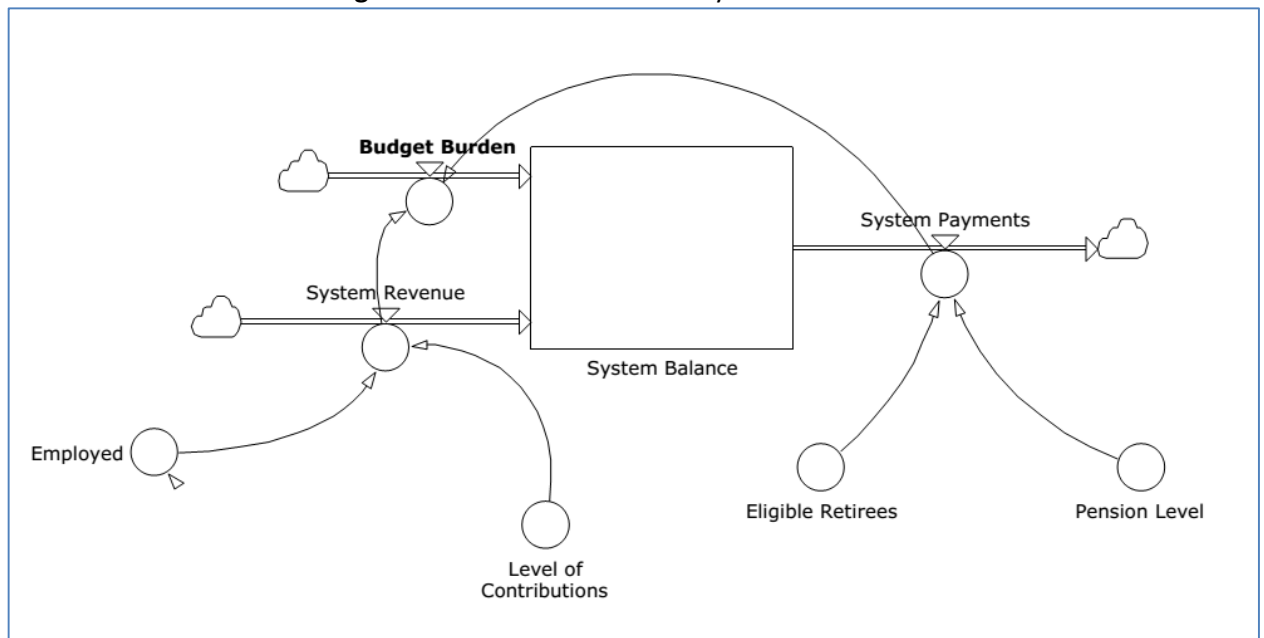
<sup>3</sup> For a detailed review one may see Blackburn (2002, 2007) and Overbye (1994, 1997).

fundamental prerequisite of the postwar pension system and welfare state. The attack on labor - through the introduction of “flexibility” in employment conditions and the creation of a general state of insecurity (precarious employment - ironically advertised as ‘flexicurity’ in the context of rising unemployment and expectations of jobless growth) - coincided with waves of structural unemployment. Both undermined the foundations of the system, as it was built based on the assumption of full employment. On another front, the attempt of neoliberalism to seek an exit from the crisis of over-accumulation through the shift to financialization led to pressures for similar changes in the management and structure of the pension system: the insurance-like approach was intensified alongside a new trend of asset management of accumulated contributions, “capitalization”. This in turn has exacerbated the role of pension funds as part of the financial system operating as a mechanism reproducing the mode of growth and the crisis of over-accumulation (Blackburn 2002), rendering the financial sector a key stakeholder (Ghilarducci 2008).

This perspective of the structure of the system operates as a distorting mechanism, shifting the focus of the debate and discourse from the real issue, i.e. the welfare of retirees, to a false, essentially irrelevant issue: the viability of pension funds. As a result conservative, neo-liberal discourse thrives by shifting the focus to the minimization of benefits or the increase of statutory pension eligibility age. Alternatively, some may focus on reducing labor cost for firms (by reducing contributions with obvious detrimental results for the pension system itself), ignoring macroeconomic and fiscal issues.

Let’s see how this works in detail. The problem is viewed as one of balancing a closed system (Figure 1) of inflows (contributions and state subsidies – i.e. fiscal/budget burden) and outflows (pensions). Contributions from workers and employers must cover as much as possible current pension payments. The term “pension system sustainability” implies nothing more than the mandate for minimizing fiscal/budget burden.

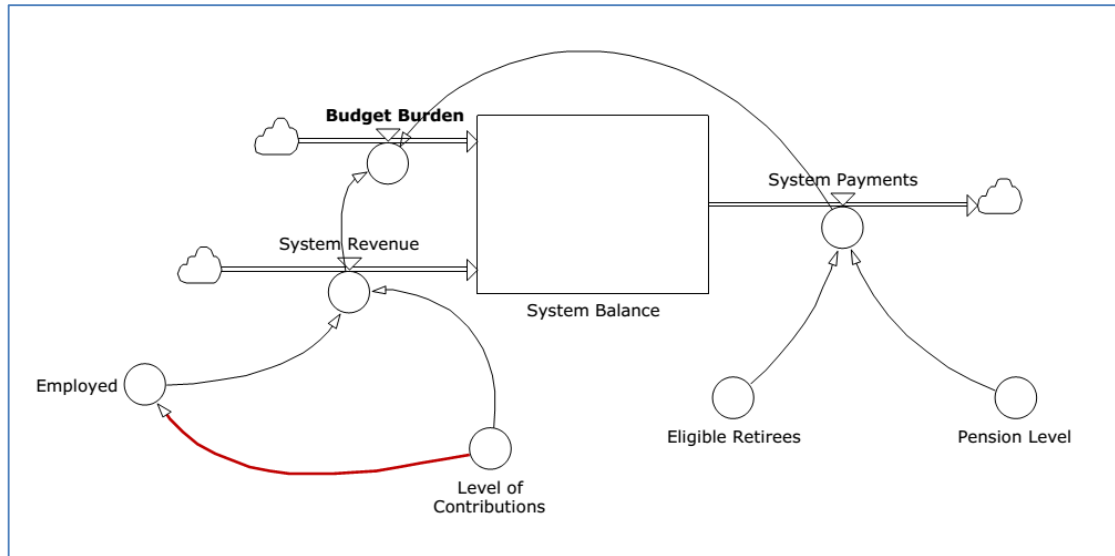
**Figure 1:** A narrow view of the system



This perspective leads to dead-ends when a solution is pursued within its logic. In order to reduce deficits – i.e. fiscal burden - there are two obvious “solutions”. First, increase revenue through a rise in employment (!) or a raise in contributions (Figure 2). However this is highly unpopular with workers (leads to reduced income) and employers (leads to higher wage cost). Consequently, it operates as a motive for undeclared employment (dodging contributions),

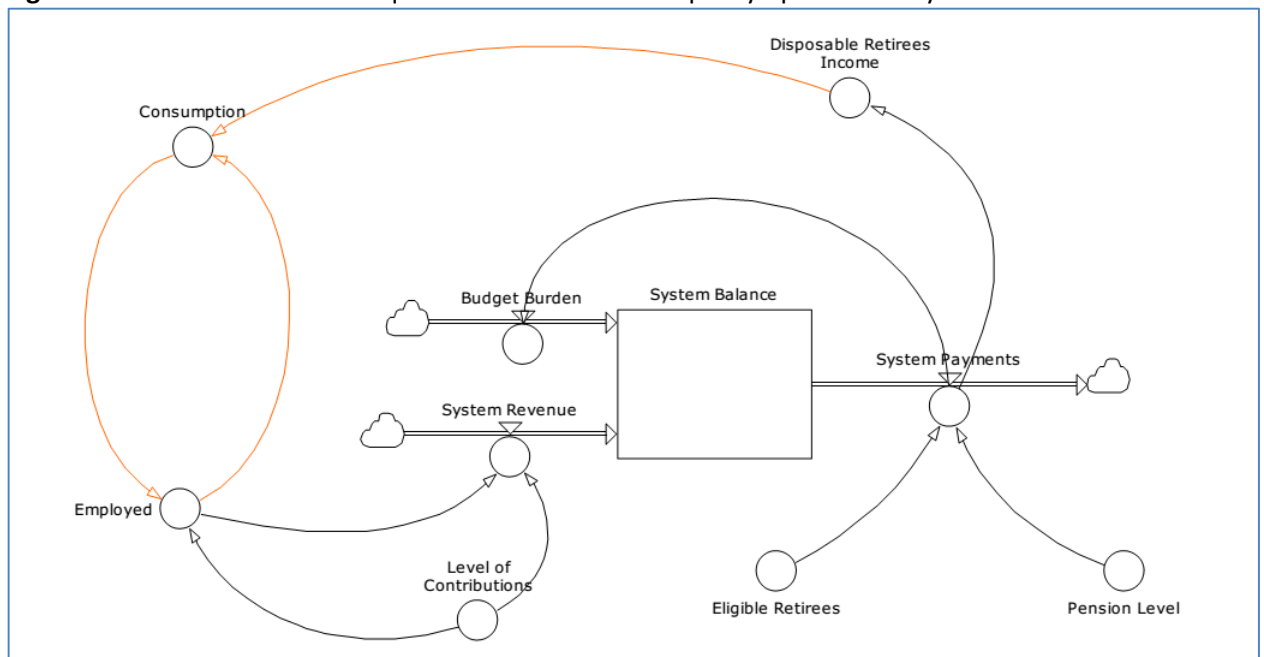
leading to further reductions of revenue and higher fiscal burden. This dynamic is often used as an argument for the reduction of contributions, with the aim to increase revenue via reduced undeclared employment and to raise the competitiveness of firms due to lower wage cost.

**Figure 2:** The “obvious solution”: increase contribution



On the other side there is left the option of reducing system payments, either by reducing the number of eligible retirees (usually through raising age limits of working time requirements) or reducing by pensions– under the pretext of fair returns to contributions, a measure that usually hits those with low wages and thus pensions rather than high earners. Furthermore this policy has crucial implications that are rarely acknowledged. Measures on both sides lead to the reduction of consumption, further reducing employment and worsening the situation due to a vicious cycle between employment and consumption (Figure 3).

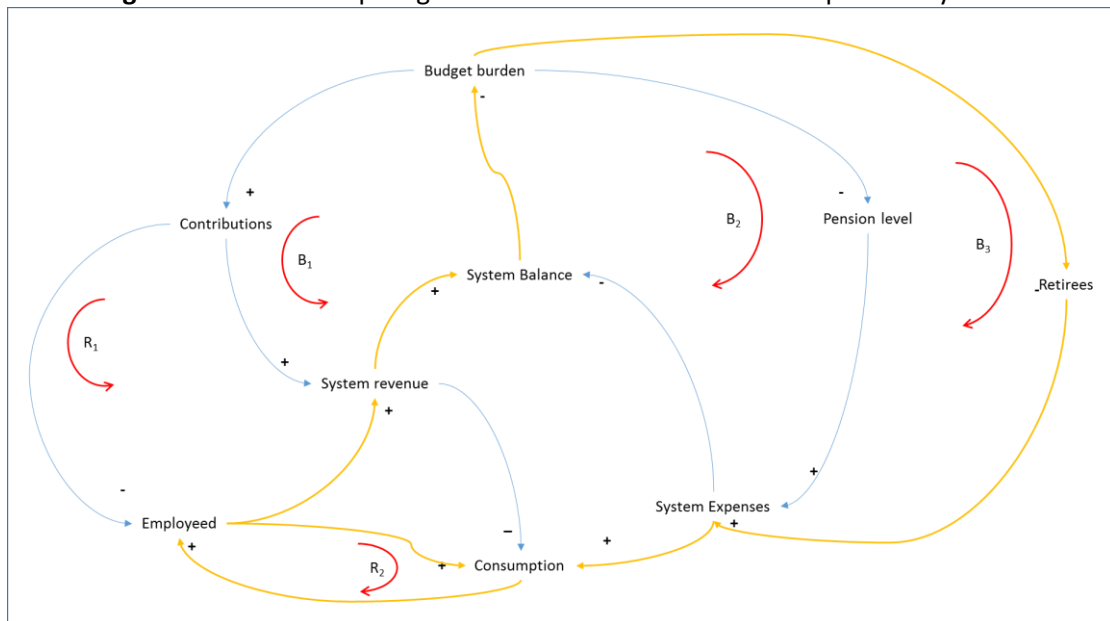
**Figure 3:** The unintended consequences of the dominant policy options and system structure



Drawing some first conclusions, one may note the following:

- As the fiscal balance worsens, the pressure to reduce pension payments will lead to reduced consumption, leading to loss of employment and further fiscal burden.
- Attempts to raise contributions may also lead to loss of employment leading to lower system revenues or reduction of consumption or both.
- Either of the above set in motion the reinforcing loop between consumption and employment, further worsening the situation.
- Any reduction in consumption reduces the GDP, leading to lower tax revenues, increased fiscal deficit, while at the same time the ratio of budget burden for pension increases.
- As the latter worsens the pressure for more measures increases.

**Figure 4:** A causal-loop diagram of behavior of current PAYG pension systems



The structure of the system itself produces “solutions” that – in the current conditions of recession and technological unemployment – worsen the situation despite any inverse intentions. There is an urgent need to question the structural foundations of the pension system.

### 3. Time for a lean view

Our analysis sets out from a radically different point of departure. In reality, the pension system is a parallel tax system, with limited redistributive or other progressive function (which, in insurance-like systems, is actually the result of corrective ad hoc interventions). It raises total income taxing for wage earners, especially at the lower end of the income spectrum. As a result highly paid employees should have the highest pensions, although they would be the least likely to need them. Most of the operations characterizing modern pension systems are necessary for the management of collection of inputs and the control of output so that it is not distributed to those excluded or distributed in analogy to working income (and contributions). Resources are also needed for policing against contribution dodging. People, businesses and governments spend too much time and resources dealing with the processes and intricate complexities – which grow exponentially over time – in order to manage, contribute according to their obligations or receive their dues. All these processes contribute absolutely no value to the end product of the system, i.e. the pension of the

retirees. Any executive with minimum exposure to the ideas and principles of lean management should be able to make this simple observation (Womack and Jones, 2003). Furthermore, the structure of the system(s) sets in motion socio-political processes that exert pressures for higher pensions and lower contributions (Overbye 1994, 1997), without allowing the considerations of boarder fiscal, economic and inter-generational issues at times of growth.

The next stage that should follow would be to look at the structures that result in the waste of so much energy and effort without any of the expected results. This would require a broader holistic view, looking at the whole context, rather than focusing at the operational management of a given pension system (in contrast to the fallacy of “insulating” the pension system from the rest of the economy; Tinios, 2010, p.54). A first step would be to question the necessity of the system itself and its components. There is the obvious issue of economic performance, not just in terms of managing the available assets, but also in terms of overall return to society. The fact that pension funds operate as accumulations of capital carries risks accompanying their management and, at the same time, it makes them part of the overall mechanism of over-accumulation contributing to the systemic risk inherent to the capitalist system<sup>4</sup>.

An alternative view could start from questioning the foundations of the pension system as it stands today. Here we explore this perspective. A universal pension system, available to all citizens fulfilling age criteria irrespective of gender and time in - formal - employment, should be more efficient while providing pensions sufficient for wholesome living. There is a notable exception to the global trends characterizing pension systems that is close to the model explored here. New Zealand has been moving consistently since the early days of its pension system towards a universal flat-rate, tax-funded pension system with significant results<sup>5</sup>. During the evolution of the political game

“...the changing governments of New Zealand -intentionally or by default - have provided the elderly poor with strong alliance partners in their quest for a high flat-rate basic pension, by providing large sections of the middle class, as well as the working class, with an increasingly strong vested interest in the maintenance of a high flat-rate basic pension”. (Overbye, 1997)

It might also be argued that the societies characterized by low income disparities (between low and high incomes) would be favorable towards such a system. Figure 5 outlines the combined operation of the tax and pension system and how it could be combined in one unified system. In the next sections we describe the dynamics of the introduction of a flat-rate tax-based pension system, present a system dynamics model and the results for a case study.

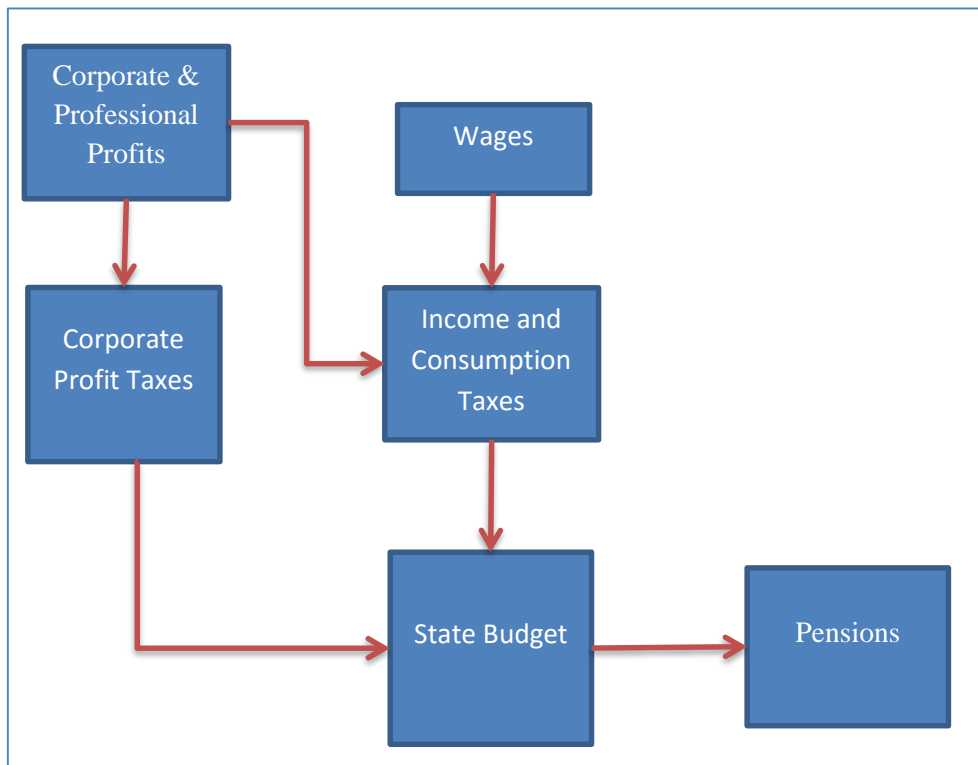
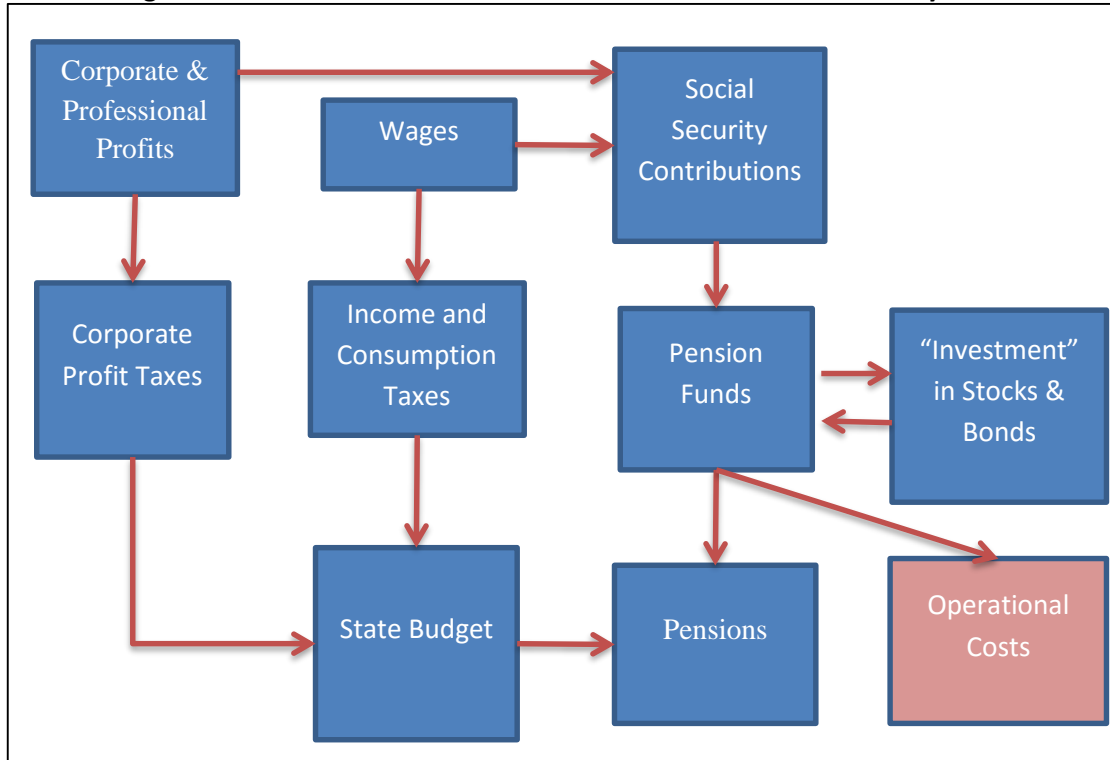
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<sup>4</sup> “Pension fund assets in OECD countries hit a record USD 20.1 trillion in 2011 but return on investment fell below zero, with an average negative return of -1.7%”, (<http://www.oecd.org/daf/fin/private-pensions/pensionmarketsinfocus.htm>),

“The OECD weighted average asset-to-GDP ratio for pension funds increased from 67.3% of GDP in 2001 to 72.4% of GDP in 2011, with the Netherlands achieving the highest ratio at 138%” (OECD, 2012).

<sup>5</sup> Public pension spending is 4.3% of GDP (compared with 7% OECD average and 11.9% in Greece) and the net-of-tax pension rate is 66% of the net-of-tax earnings (OECD 2011).

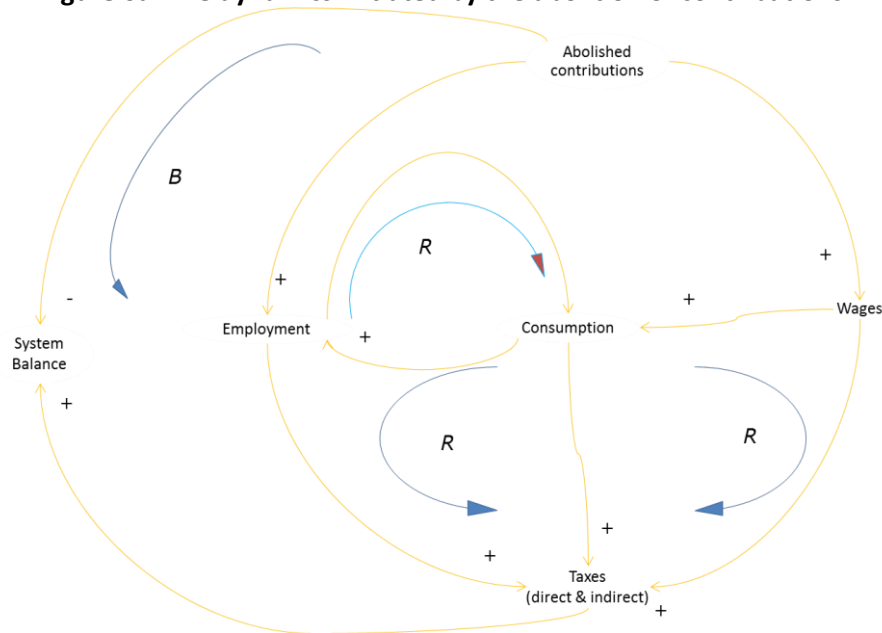
Figure 5: Towards a LEAN transformation of the Tax and Pension System



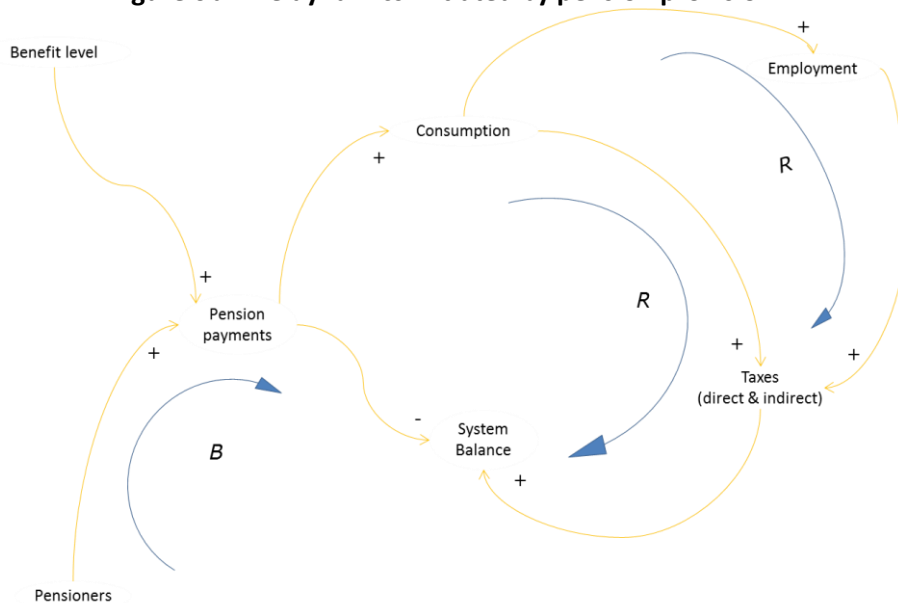
#### 4. The dynamics of the introduction of a lean universal pension system

The dynamics of this system are set in motion by two levers initiated established by the new system examined. First (Figure 6a), the abolition of contributions will result in an immediate negative (balancing) impact on system balance, and a set of positive effects on system balance as the rise in wages and the increase in employment will result in increased consumption leading in higher tax collection; the most important lasting effect is the reinforcing loop between employment and consumption. Second, (Figure 6b) the universal provision of pensions has a negative impact on system balance, but sets in motion the same positive impact and reinforcing feedback loop through consumption and employment as in the previous case. Thus, the issue at hand is to explore the dynamic behavior of the system where the three loops operate contemporaneously.

**Figure 6a: The dynamics initiated by the abolition of contributions**



**Figure 6b: The dynamics initiated by pension provision**



In the next section we describe a system dynamics model of this approach to pension policy.



## 5. The system dynamics model of a lean universal pension system

The model resulting from the approach described above consists of two main subsystems<sup>6</sup>: the first (Figure 7a) describes the fiscal flows resulting from the changes in income and consumption caused from the new pension policy; the second (Figure 7b) depicts the impact of the new system on employment.

The aim is to study the dynamic that determines the balance of pension related flows. The balance will be negative and will result in an extra burden for the government budget, a political issue in itself as it concerns the degree to which (direct) taxation would operate in a progressive fashion, redistributing wealth. The important aspect of calculation in this part of the model is that we need to account only for the marginal effect that variations of the proposed alternative policy will have on the various components of consumption and income, before calculating their effect on budget revenue and employment.

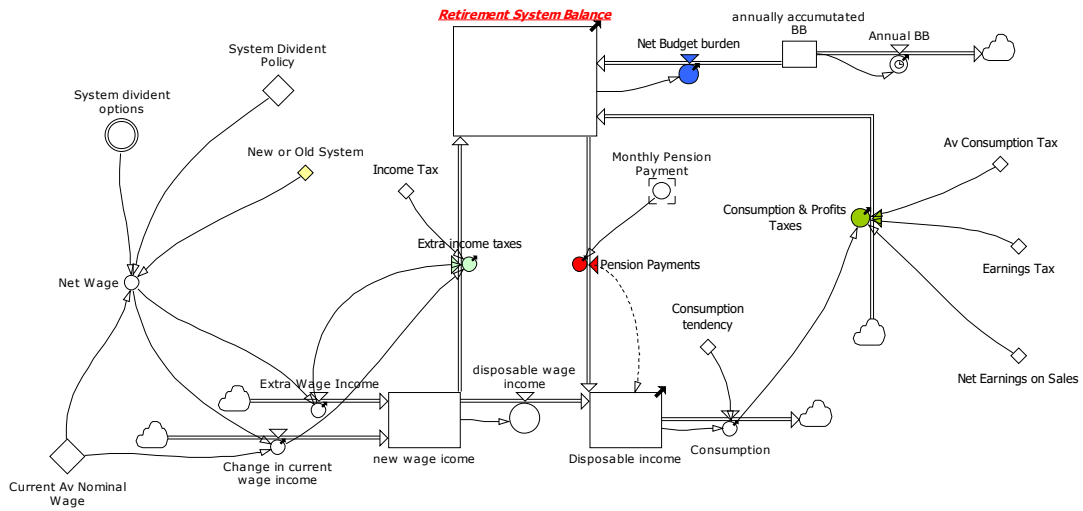
A steady state of economic affairs is assumed, so recession or high growth effects are omitted for the sake of comparison (although a relevant feature is built into the model for future exploration), with initial conditions set at January 1<sup>st</sup> 2016.

Retirement occurs at a certain age according to policy scenarios: the rate of retirement is the algebraic sum of entry to employment at the age of 20 and cumulative deaths occurring in the period in-between. If retirement age is reduced the total number of pensioners will increase. So, there may be a trade-off between age of retirement, employment and pension benefit level, for policy and society to consider.

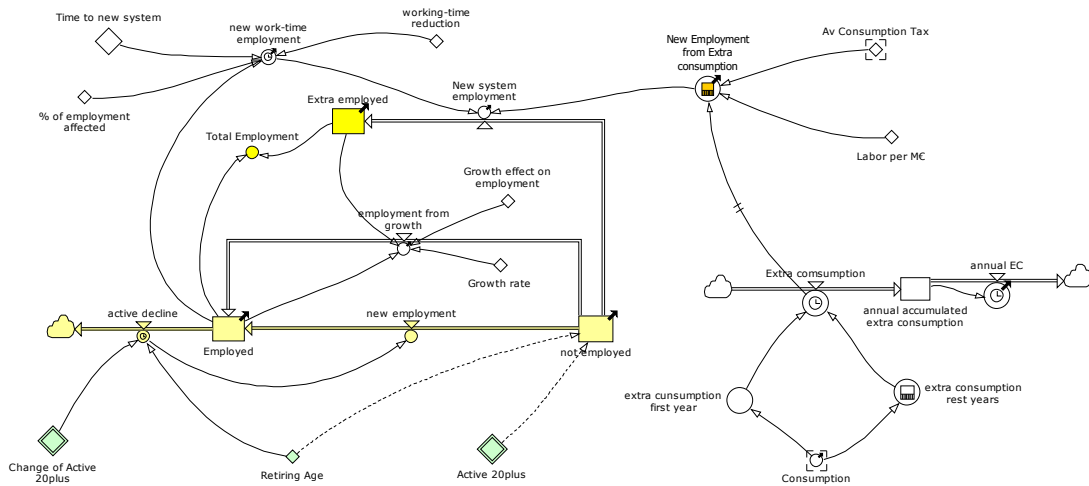
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<sup>6</sup> The system dynamics model was developed with the Powersim simulation environment.

**Figure 7. System dynamic model of a universal pension system**



**a: fiscal impact**



**b: impact on employment**

### 5.1. Sharing the change dividend

As it becomes evident from the model there is the issue of managing the dividend arising from the dissolution of pension contributions (employee and employers). There are two obvious options: increasing wages, with obvious impact on consumption and the countries trade balance, and reducing labor cost, by not sharing the benefits to workers (with questionable impact on prices or profit tax collection). A third radical option would be to use the dividend in order to reduce working time in order to increase employment. This would not raise labour costs for firms, but would most probably result in productivity increases. Some types of employment would not be affected as much, i.e. self-employed and public sector (where one might assume there is significant scope for re-engineering and digitalization)<sup>7</sup>.

<sup>7</sup> A detailed discussion goes beyond the scope of this paper. Here we will assume that most of public sector employment will not be affected. With respect to self-employed most will be affected, as they are currently forced to appear as such because the form of employment and social insurance legislation discourages direct wage contracts.

Here we examine a mix of the first and third options, i.e. part of the remaining contributions are directed to the generation of new employment through working time reduction and part to real wage increase.

Thus, if for a wage  $W$ , employee contributions are  $WC$  and employer contributions are  $EC$ , then<sup>8</sup>:

- Real wage will be  $RW=W-WC=W*(1-WC)$
- Real labour cost will be  $RL=W+EC=W*(1+EC)$

Also, if working time reduction is  $X$ , then, in order not to increase labour cost the new wage should be:

- $NW=RL/(1-X)=W*(1+EC)/(1-X)$

Currently in Greece the contribution rates are as follows:  $WC=13\%$  and  $EC=26\%$  approximately. Thus,  $NW=W*1,26/(1-X)$  and  $NW-RW=-0,87+1,26/(1-X)$

Here the scenario examined assumes a 25% reduction in working time (30 hour week, against the current status (40 hour week)).<sup>9</sup>

## 5.2 Model Equations

The main equations for the above model are as follows:

### System Balance:

Retirement System Balance =

$$\int (\text{Consumption and Profit Taxes} + \text{Extra Income Taxes} - \text{Pension Payments})$$

### Taxes (pensions are assumed to bear no income tax):

Consumption and Profit Taxes =

$$(\text{Consumption} * \text{Average Consumption Tax Rate}) + (\text{Consumption} * \text{Net Earnings on Sales} * \text{Corporate Earnings Tax Rate})$$

$$\text{Extra Income Taxes} = \text{Income Tax Rate} * \text{Extra Wage Income}$$

### Income and Consumption:

$$\text{Consumption} = d(\text{Disposable income} * \text{Consumption tendency})/dt$$

Disposable income =

$$\int (\text{Pension Payments} + \text{Extra Wage Income} + \text{Change in current wage income} - \text{Consumption})$$

$$\text{Extra Wage Income} = \text{Extra Employed} * \text{New Wage}$$

$$\text{Change in current wage income} = d(\text{Employed} * (\text{New Wage} - \text{Average Wage} * 0,87))/dt$$

$$\text{Pension Payments} = \text{Retired} * \text{Social Pension} * \text{Income criterion ratio}$$

<sup>8</sup> Estimations were made according to the contributions estimated by the major social insurance organization "IKA" (<http://www.ika.gr/gr/infopages/asf/insurance/charge.cfm>)

<sup>9</sup> It would probably be more realistic to assume that new employment would occur at lower than current wage levels. This would result in actual reduction in total labour cost (e.g. if new employees would be paid 20% lower in average this would result in 5% total labour cost reduction). This assumption is not explicitly examined in the scenarios presented below, as it falls within the more general scope of lower wage/income level.

### Employment:

$$\text{Extra Employed} = \int (\text{Employment from growth} + \text{New system employment})$$

$$\text{Employment from growth} = \text{Employed} * \text{Growth rate} * \text{Growth effect on employment}$$

$$\text{New system employment} =$$

$$\text{New Employment from pension tax restructuring} + \text{Extra New Employment}$$

$$\text{New Employment from pension tax restructuring} =$$

$$d(\text{Employed} * \% \text{ of employment affected} * \text{pension tax share to employment})/dt$$

$$\text{Extra New Employment} =$$

$$(\text{Consumption} - \text{Extra consumption prev year}) * (1 - \text{Av consumption tax}) * \text{Labor per M€} / 1\text{M€}$$

## 6. Simulation Results

The model was run on data from the Greek economy. The Greek pension system is extremely fragmented, with a wide variety of pension types and contributions, and extremely wide gaps between high and low pensioners. Most people above retirement age receive no or very small pensions, below the minimum wage. The simulation runs for the period from 2013 until 2049, when the demographic trend reaches the peak of rising share of aged citizens (according to Eurostat projections)<sup>10</sup>.

The basic assumptions for the model are shown in Table 1. The key policy variables, for the base run, are shown in Table 2. Results for different scenarios are shown in Figures 8, 9 and 10.

**Table 1. Simulation Model Assumptions**

Income tax <sup>11</sup>	15%
Average Consumption Tax	15%
Corporate Earnings tax	20%
Current average wage	1000 Euros/month
Eligibility ratio	90%
Labor per M€	20 people per 1M€
Consumption tendency	90%
Growth rate	1%
Growth effect on employment	50%
% of employment affected (by working time reduction) <sup>12</sup>	60%
Consumption multiplier	1,2

**Table 2. Base run policy variables**

Social Pension	800€/month
Retirement age	65
Working time	30 hrs/week
System dividend share	50-50

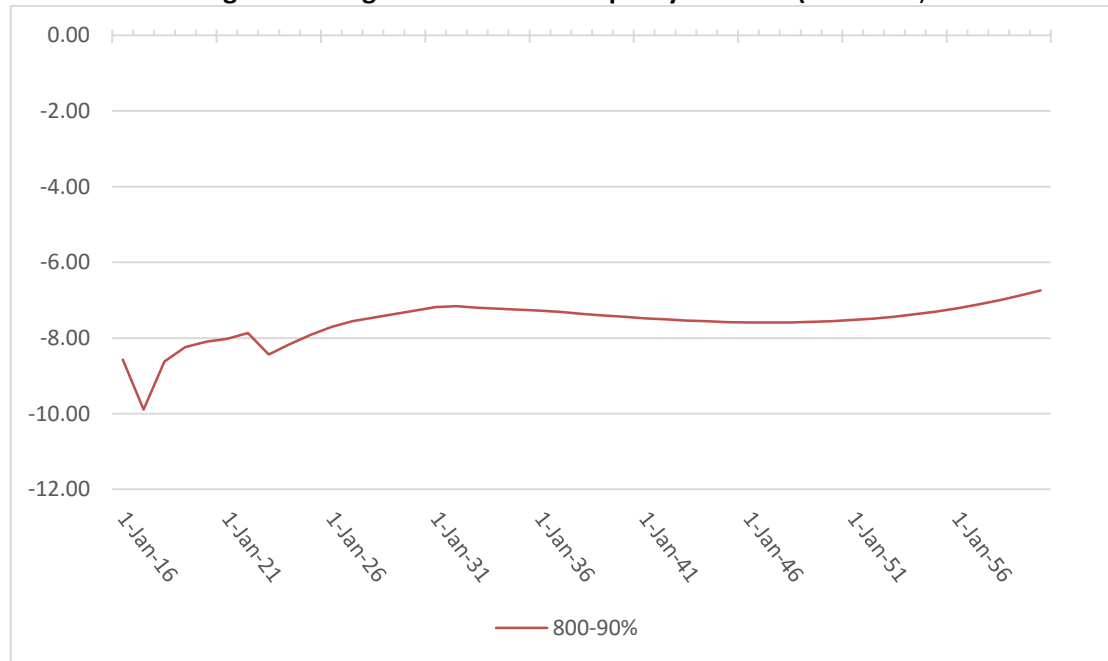
<sup>10</sup> [http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search\\_database](http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database), 1st January population by sex and 5-year age groups [proj\_10c2150p]

<sup>11</sup> Implicit tax rates were in 2010: Consumption 15,8%, Wage labour 31,3%, Capital 16,5% (European Union 2012)

<sup>12</sup> This would assume that there is almost no effect on public employees and most self-employed.

First results (Figure 8) show considerable effect on budget burden. Consistently with a system change, we observe that performance worsens before it improves considerably, from 3% of GDP (currently below 190 billion Euros) for retirement at 60 to approximately 6% of GDP for retirement at 65.

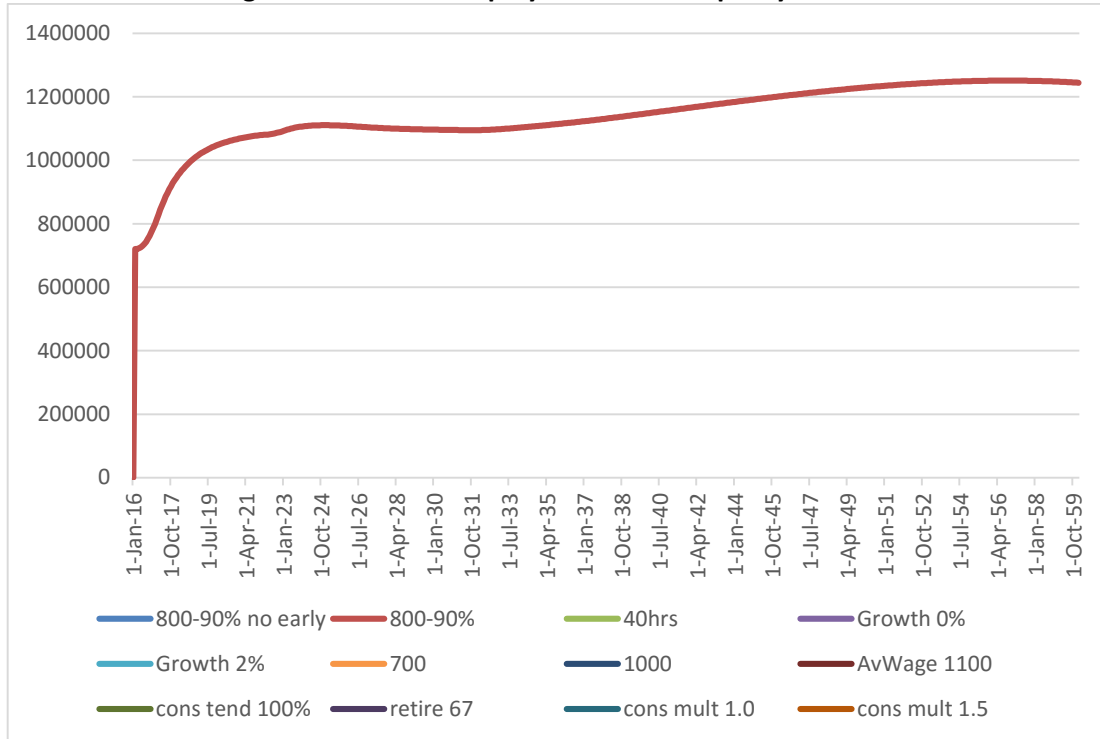
**Figure 8: Budget burden for base policy scenario (% of GDP)**



Probably the most important (given the extent of the current social crisis) result is shown in Figure 9. There is a significant boost in employment which – also important – is sustained for the duration of the period examined. The rise in employment is the combined effect of reduction in working time and rise in aggregated consumption. The effect carries on as more increased employment (along with the rising numbers of pensioners) feed back into consumption. There is an obvious trade of between fiscal burden and employment for different retirement age policies<sup>13</sup>.

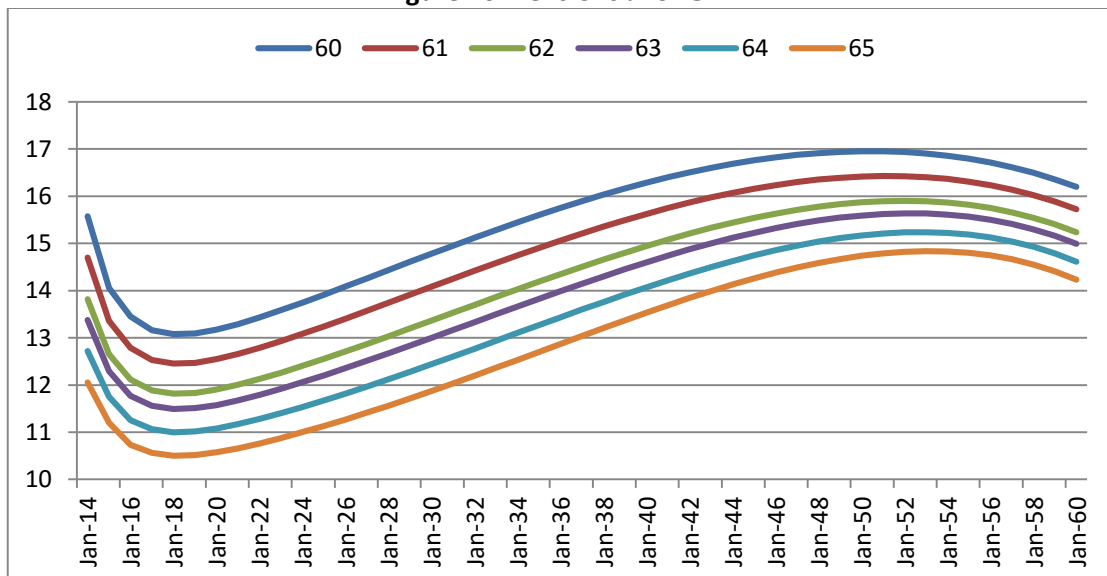
<sup>13</sup> the direct effect of lower retirement age on unemployment (which would further reduce unemployment as would drive more people to retirement) is not depicted here

**Figure 9: Effect on employment for base policy scenario**



In order to comprehend the behavior of the system we should look at some other indices. First, we observe (Figure 10) that pensions keep rising as a share of GDP<sup>14</sup>, after a short but rather sharp reduction due to the restructuring of the pension system (the issue of the transition management is not discussed here, as it is beyond the scope of this paper).

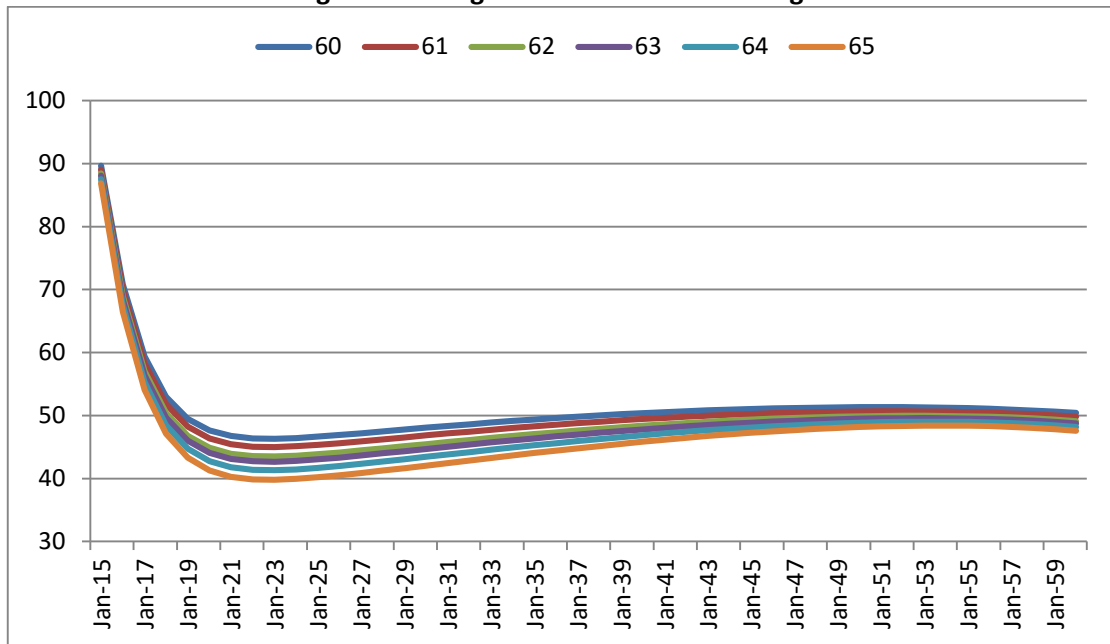
**Figure 10: Pensions % of GDP**



However, as we saw in Figure 8, budget burden is reduced considerably, before it rises again and then follows the demographic trend at a sustainable level. This happens because the net budget share in pension payments is actually reduced to around 50% (Figure 11).

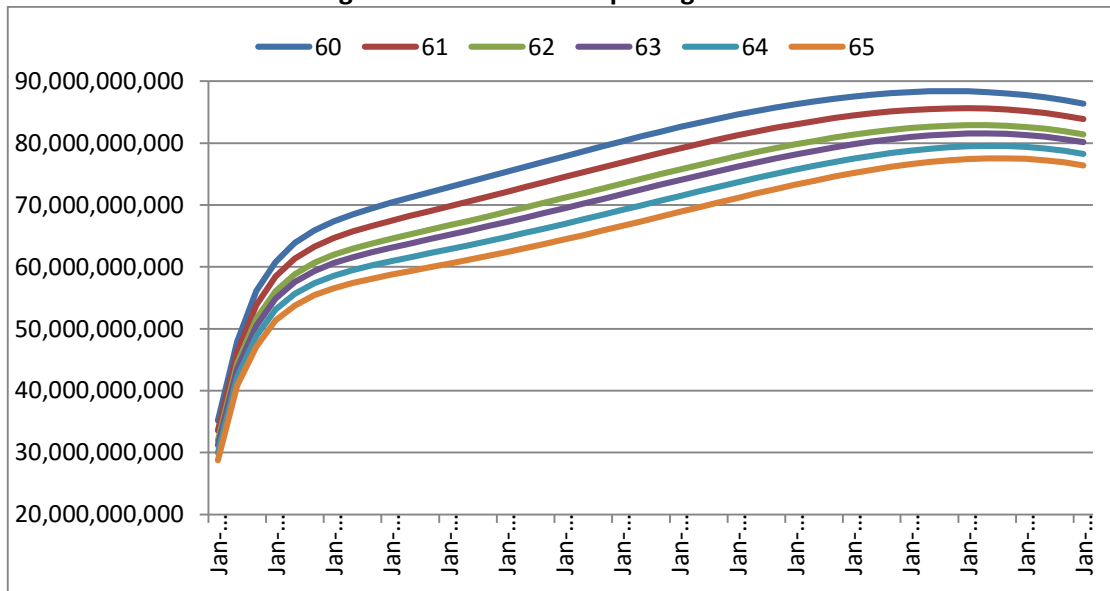
<sup>14</sup> zero growth is assumed here.

**Figure 11: Budget burden % Pension Budget**



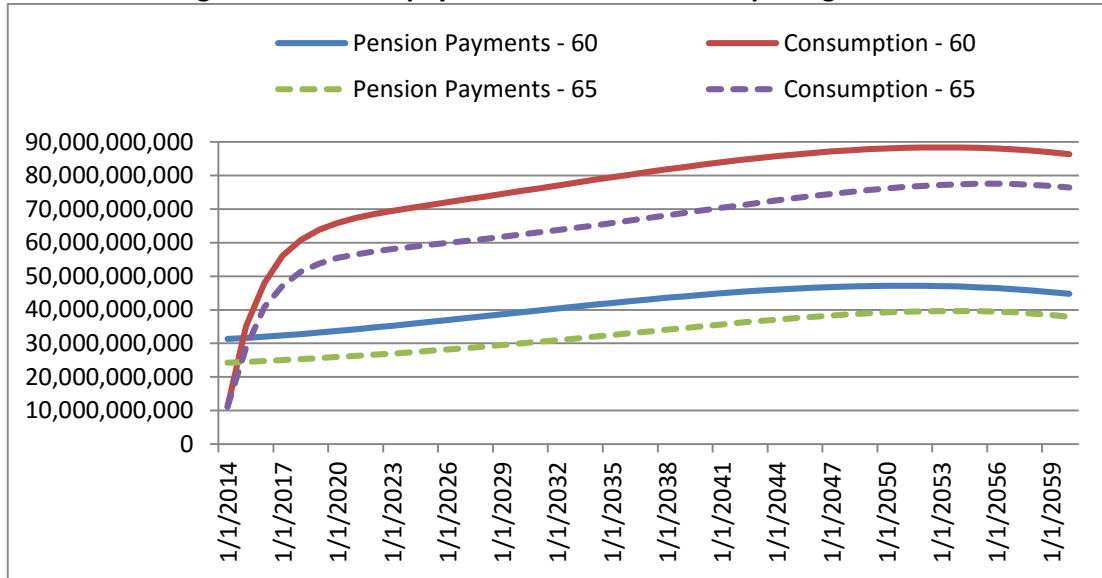
This reduction may be attributed to the rise of consumption generated by the introduction of the new system (Figure 12) which is well above the level of pension payments (as shown in Figure 13 for retirement at 60 and 65). This in turn generates more consumption, profit and income taxes (the last because of higher employment).

**Figure 12: Extra consumption generated**



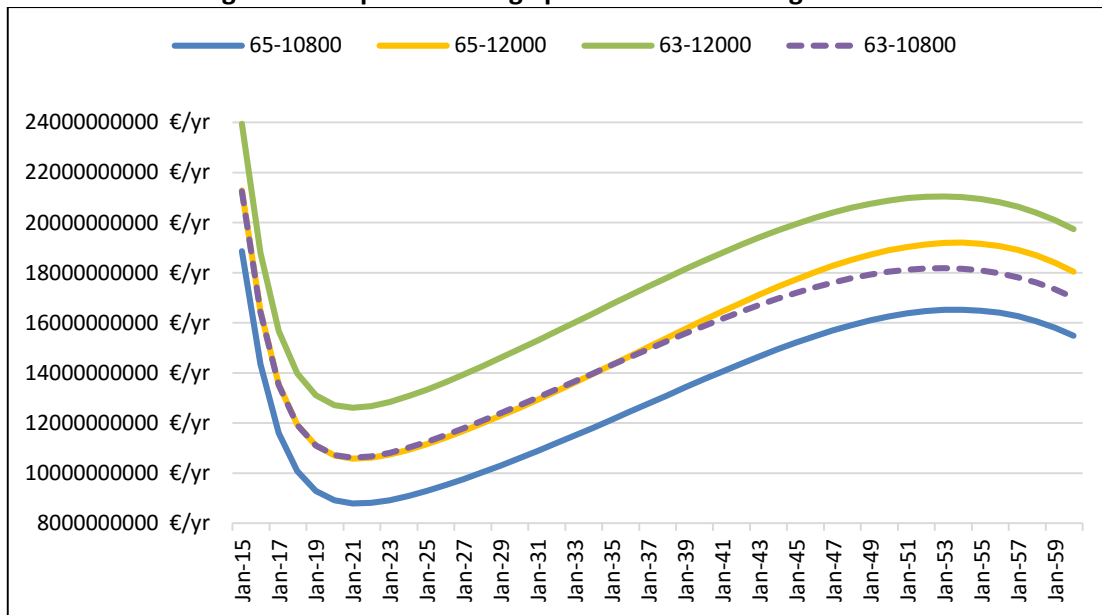
As shown in Figure 13, extra consumption generated by the transition to the new universal system rises to more than twice the total pension payment forecasted. Thus, the system generates tax revenue for the budget well above the gap created from the abolition of pension funds.

**Figure 13: Pension payments and extra consumption generated**



Finally, we may explore the trade-off between pension payments and retirement age. As we see in Figure 14 a 10% reduction in pension benefit would be equivalent to a two year decrease of retirement age for more than 20 years.

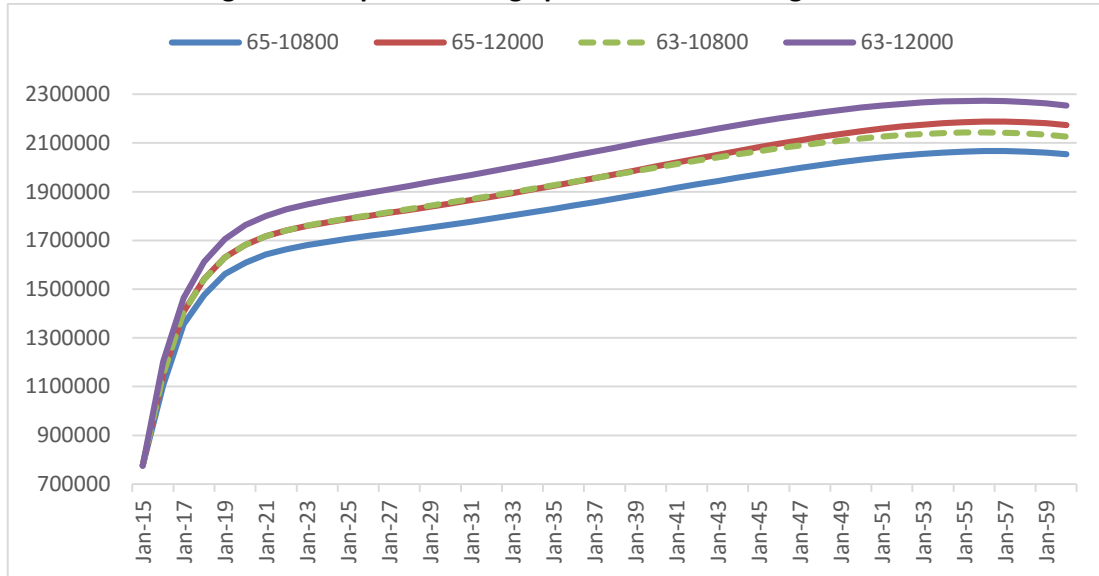
**Figure 14: Impact of change pension benefit budget burden**



However, it would have the opposite effect on the generation of extra employment, as shown in Figure 15 below.



**Figure 14: Impact of change pension benefit budget burden**



## 7. Conclusion

The approach examined in this paper has taken the opposite direction vis-à-vis dominant debate. Instead of attempting to resolve the issues within the structure of the existing system (a mix of insurance-like structure and state funding), the alternative examined here is a tax-funded, universal pension system with the requirement of a means test. The analysis set two broad performance dimensions:

- fiscal impact: the budget burden generated by the new system, and
- social impact: pensioners welfare and impact on employment

A system dynamics model was built on the basis of the Greek case. An important by-product of this shift in policy would also be a simple model, easy to comprehend. A simplified retirement policy framework offers obvious opportunities for reflection. Consequently it would be highly appropriate as a tool for dialogue and participative decision making, a condition extremely necessary in view of our aging societies.

The results from the simulation runs showed that the alternative pension system examined may have considerable positive fiscal impact (reducing budget burden up to nearly 4% of GDP). On the social front, the change should improve the income of the vast majority of pensioners, in comparison to the current situation, with the possible exception of high pensioners (whom a transition could be negotiated with). The most significant, and probably not anticipated, gain would be on employment. The choice to allocate the dividend - which results from the abolition of contributions - to labor instead of other alternatives (e.g. employer profits to be taxed), makes possible wider changes: while there is a rise in net wage income, the most important result is the significant reduction of working time to 30 hours per week, which in turn leads to a massive rise in employment. The model constructed allows for a period of adjustment that should prove sufficient to business organizations.

On a more philosophical level, the change examined is linked to changes in values about work, inter-generational solidarity and social rights. It is compatible with a policy of minimum income as it provides a dignified income for pensioners (above basic salary) and at the same time liberates resources for provision of social benefits and support for younger ages (this includes not only the saving estimated from pension provision but also the result of lower

needs for unemployment benefits and income support due to the attainment of high employment levels).

This model may be expanded in order to address issues relating to the interplay of working time with retirement age and employment, and between retirement age and pension benefit (i.e. pensioners would be allowed to decide their age of retirement knowing the expected impact on their pension. Another avenue of exploration could be the impact on employment dynamics: as employment conditions would be considerably improved, Greece could be an attractive place to work and live, attracting young people from other European countries, as well as business.

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