IMPACT OF TAX INDUCED RETIREMENT BENEFIT SCHEMES ON CONSUMPTION AND SAVING IN SOUTH AFRICA

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ABSTRACT

This article empirically analyses the impact that tax induced retirement benefits (pension payouts) have on contractual saving and consumption behaviour in South Africa. By using a basic extended Ando-Modigliani life cycle model it is shown that pension payouts accumulated through deductible contributions to retirement schemes contribute towards increased levels of consumption expenditure with the crowding out of discretionary household saving. The results also suggest that the taxing of retirement benefits under the current tax structure may discourage individuals to save through retirement schemes and instead encourages increased levels of current consumption expenditure. The econometric technique used is the Engle-Granger (1987) method of estimation. Estimates of the impact of retirement benefits on consumption expenditure are robust also when regressed on per capita government deficit ratios and unemployment. Thus, the tax treatment of retirement schemes in South Africa may have adverse effects on saving largely influenced by the discounted value of retirement benefits.

INTRODUCTION

With the ageing of the Baby Boom population more pressure is exerted on budgeting for increased social spending. Many examples exist of governments initiating reforms in their social security programmes to improve retirement schemes and encourage more private participation. The question is how to include those in the lower income groups who are basically excluded from the tax net into a sustainable retirement scheme given the fiscal constraints within which governments, (especially in developing countries) have to operate.
South Africa has also embarked on this endeavour with a recent report by the National Treasury stating its intention to revise the current retirement legislation. This follows recommendations by the Katz Commission (1995:16) and the Smith Committee (1995:20-21) regarding the role of pension funds in retirement. The question to be investigated is how tax induced contributions to retirement funds affect consumer behaviour and saving levels. Indications are that increased savings recorded in some East Asian countries could be partly attributed to compulsory saving schemes for retirement.

The rest of the article is structured as follows: Section two contains an overview of international best practice regarding retirement schemes. Section three discusses at the tax treatment of retirement benefits in South Africa while the model structure and empirical analysis are recorded in Section four. Section five concludes, whilst possible policy implications are presented in Section six.

RETIREMENT SCHEMES

Role of fiscal incentives

Ageing of the population and high levels of unemployment in South Africa have contributed to an increase in government expenditure on social security related expenditures such as pensions to the aged. However, national savings are on the decline (Loayza, Schmidt-Hebbel and Servén, 2000:394-6) suggesting that the increased public expenditures on social security are not being matched by an equal increase in private contributions. Mandatory contributions to social security schemes backed by fiscal incentives are becoming more common practice, especially in the case of health and unemployment/retirement schemes. In this regard fiscal initiatives are commonly being used to encourage individuals to contribute towards both public and private pension schemes.

Given that national saving is on the decline (with exceptions as stated by Krever, 2002:6) there seems to be uncertainty as to how retirement contributions should be dealt with from a tax point of view. One scenario is that such savings be treated differently from other forms of savings, since they usually qualify for tax incentives. Another scenario is that they should be treated equally to other forms of saving given the competitive market for such instruments and institutions involved where it becomes increasingly difficult to differentiate between longer term saving instruments that could qualify for incentives. Given the size of the revenue loss it is also important to establish whether such fiscal incentives comply with the basic requirements for a proper tax regime such as tax neutrality and the impact of tax on the intrinsic value of the savings (Burman, 2002:5).

The full fiscal effect of the retirement burden can partly be determined by quantifying the effect of tax induced retirement savings on consumption, using a typical life cycle model. The general notion is that taxes reduce the return on investment (thus resulting in a bias towards investment in assets that are less taxed or tax-exempt) and thereby negatively affecting individuals’ purchasing power. This effect is more severe in the case of low-
income groups, whose capability to save for retirement is almost non-existent. Therefore, an adequate form of tax treatment (such as an incentive scheme that encourages saving for retirement), is of the utmost importance. However, it is also argued (cf. Krever, 2000:9) that individuals with higher income tend to save even without inducements (compulsory or mandatory), while individuals with a low income find it difficult to save despite inducements, in which case only the middle income groups should really be targeted for such incentives (Krever, 2002:11).

**Schemes for taxing retirement benefits**

The most commonly used tax procedure on retirement benefits in OECD countries is the traditional EET (Exempted when contribution is made, tax Exemption on funds’ investment income and Taxes on received benefits) where accumulated benefits from pension payouts are fully taxed at retirement. However, this scheme does not seem to be favourable in an environment where governments suffer severe financial constraints (as in most developing countries). Also, when such contributions are on the increase, it defers tax revenue to a future date when pensioners qualify for their pension payouts. Because of this, some countries use a different tax regime such as TEE (Taxes on contributions, tax Exemption on funds’ investment income and tax Exemption on benefits). In this system pension schemes are taxed when contributions are made and exempted when benefits are paid. The TEE tax system raises revenue at the time of contribution, but the revenue raised is less than in the case of EET, since in the latter case the tax includes the earning on savings invested.

Other variants in the tax treatment of retirement savings include the ETT (Exempt, Tax, Tax) and the TTE (Tax, Tax, Exempt) systems. These two systems provide similar benefits to individuals but revenue is higher with the ETT than with TTE. With the latter form of tax treatment individuals receive less benefits than in the case of the EET or TEE systems. However, government revenue is higher under ETT and TTE than under EET and TEE.

Atkinson, Creedy, and Knox (NBER) conclude that when comparing the Australian approach to the tax treatment of retirement benefits (TTT), that is, Tax on contributions, Tax on funds’ investment income and Tax on benefits; to the EET of OECD countries, the latter performs better with regard to accumulated benefits. However, revenue collection is delayed in the case of the OECD with the net effect on individuals pending in part on their earning profiles. The Australian tax structure affects the size of retirement benefits, but it advances tax revenue from such savings. Nevertheless, the authors agree that only minimal differences exist between the OECD and Australian tax structures, when assessed in terms of aggregate measures (Kakwani index) of lifetime income used to assess progressively within the cohort of full time workers.

The tax system that any government chooses, depends on the policymakers’ objectives. If the objective is to collect more revenue, obviously the ETT or TTT (the Australian version) will be preferable, but if the objective is to provide the individuals with better standards of living during retirement, then the OECD (EET system) seems to be preferred from the point of view of the well being of retired individuals.
To guarantee sustainability in the provision of retirement income, many governments already offer a variety of incentives differentiating between assets within which pension funds are allowed to invest, allowing for investment diversification and avoiding arbitrage between different funds and investment in assets.

**Tax treatment of pension funds in South Africa**

To conform with the conditions for sustainability, the Smith Committee (1995:20-21) identified a number of principles regarding the tax treatment of retirement funds, namely:

- consistent treatment of private and public sector funds;
- neutrality among forms of retirement provision;
- minimisation of opportunities for tax arbitrage;
- an incentive for lifetime annuities; and
- taxation of income as it arises rather than when it is paid out.

The taxing of retirement saving in South Africa is partly influenced by the need to expand the revenue base, as in the Australian case. In 1995, the Katz Commission estimated that the government lost approximately R11 billion in revenue during that year due to the generous tax treatment of pension funds. As a result the Commission recommended that:

- the overall contribution rate to retirement funds be capped at 22,5% (with 7,5% per employee contribution, qualifying as tax deduction and 15% per employer);
- a tax on retirement funds at a rate of 30% on their taxable income, calculated in the same way as the rate for long-term insurers; and
- upon death, or at withdrawal or retirement, a maximum amount be made available by means of a lump sum that is tax free with balance to be invested in an approved investment fund.

Retirement schemes in South Africa consist of pension funds, provident funds, and retirement annuity funds, registered under the provision of the *Pension Funds Act*, 1956 (Treasury, 2004:4-7). These funds are subject to the ETT (Exempt Tax) tax system, that is, exempted when a contribution is made, taxed on the fund’s investment income and taxed on the benefits. “The retirement industry currently has approximately 8,3 million members, of whom 7,0 million are active. It is estimated that assets worth R720 billion are being managed by retirement funds” (*Business Report*, 22/12/2004).

By exempting contributions to pension funds from taxation, the ETT system defers the tax revenue from the contribution period to the period of maturity of the investment. Retirement Funds are taxed on their profits while retirement benefits are taxable at the hands of the individual beneficiaries. Thus, benefits received from a pension or retirement annuity fund, form part of individual gross income and are taxed according to personal income tax tables, with only a portion (currently a maximum of R120 000) considered tax free (Sephton, 1990:31-30).
MODELLING THE IMPACT OF CONTRIBUTIONS TO RETIREMENT FUNDS

Methodology

In order to understand how the tax treatment of pension payouts as well as tax induced pension contributions affect savings, the traditional life cycle model of Ando and Modigliani is used (1963: ) which firstly assumes that the utility of individuals depends on their planned bequests, with utility a function of such bequests, and planned levels of consumption. Secondly, contributions to bequests are correlated to the individual’s income relative to the average level of income of his/her age group. Also, the distribution of income within each age group is assumed to be constant over time.

Ando and Modigliani (1963:60) specified consumption as a function of labour disposable income as well as non-labour or property income. Many other studies have been conducted (using the Ando-Modigliani specification). Feldstein (1974:914), extended the Ando and Modigliani specification to include the effect of social security wealth on consumption. Barro (1978:10-11) proposed another modification to Ando and Modigliani (1963:60-62) and Feldstein (1974:910) specifications by including the effects of the per capita government deficit/surplus on real per capita consumer spending on durables. He suggested that unemployment be entered in the equation as the product of the unemployment rate and the level of real per capita disposable income.

In this study the Feldstein (1974:914) specification is adopted to investigate the extent to which savings, between 1970 and 2003, were affected by the tax on retirement savings as applied in South Africa. However, non-labour income mentioned in the earlier specifications, will not be used separately due to specification/data difficulties. Thus, consumption is a function of disposable income and pension and provident benefits (both official and privately administered):

\[
\text{ConsPC} = f(Y_{d\text{PC}}, Y_{d\text{PC}(-1)}, TBENPC)
\]

where ConsPC is the real per capita consumption, \( Y_{d\text{PC}} \) is the real per capita disposable labour income and TBENPC the real per capita total pension and provident fund benefits. To test for the impact of pension and provident funds on consumption, the consumption equation above is re-estimated, taking into account the Barro (1978:12) suggestion. Thus the product of the unemployment rate and per capita disposable income is entered into \((Y_{d\text{UNPC}}\), the government surplus/deficit per capita \( (g\text{defPC})\).

Data and empirical results

The data used in this study was obtained from the South African Reserve Bank (SARB) Quarterly Bulletin (various issues) while demographic data was sourced from the World Development Indicators (2005), covering a range of 34 years. The data on officially administered pension schemes covers the period 1990 to 2004, which obviously constitutes a serious constraint to the analysis due to the limited data points available. In this model the variable disposable income also includes income from property. This
constraint complicates the assessment of the effects of non-labour income on consumption and its substitution effects in South Africa.

Unit root tests were concluded for all variables in the model. The results of the Augmented Dickey-Fuller and KPSS tests show that all variables (in natural logarithms and in levels) are I(0), except the interacted unemployment variable and both total and privately administered

**Table 1: Dependent variable – lnConPC – Long-run Coefficients**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Regression 1</th>
<th>Regression 2</th>
<th>Regression 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>LnYdPC</td>
<td>0.933 (0.0066)</td>
<td>0.905 (0.0086)</td>
<td>1.014 (0.0217)</td>
</tr>
<tr>
<td>LnTBENPC</td>
<td>0.060 (0.0068)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LNRTPAPPPC</td>
<td></td>
<td>0.090 (0.0090)</td>
<td></td>
</tr>
<tr>
<td>LNTPPFAPC</td>
<td></td>
<td></td>
<td>-0.028 (0.0347)</td>
</tr>
</tbody>
</table>

(Standard errors in parenthesis)
LNRTPAPPC = Privately administered funds
LNTPPFAPC = Publicly administered funds

**Table 2: Dependent variable – D(lnConcPC) – ECM: Adjustment Coefficients (short-run dynamic adjustment)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Regression 4</th>
<th>Regression 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>ResTBENPC(-1)</td>
<td>-0.351 (0.1334)</td>
<td></td>
</tr>
<tr>
<td>ResTPAPPPC(-1)</td>
<td></td>
<td>-0.495 (0.1269)</td>
</tr>
<tr>
<td>D(lnYdPC)</td>
<td>0.469 (0.1112)</td>
<td>0.442 (0.1075)</td>
</tr>
<tr>
<td>D(lnConsPC(-1))</td>
<td>0.324 (0.1429)</td>
<td>0.411 (0.1233)</td>
</tr>
<tr>
<td>D(lnConsPC(-4))</td>
<td>-0.230 (0.1314)</td>
<td></td>
</tr>
</tbody>
</table>

(Standard errors in parenthesis)
pension benefits, which are I(1). The results of the long-run equation obtained from the Engle-Granger (1987:264-6) two-step estimation procedure are shown in Table 1, with all the variables in natural logarithms. Table 2 shows the results of the Error Correction Model (ECM) and the short run dynamic adjustments for ResTBENPC and ResTPAPPPC as in Regression 4 and 5, respectively. The results show that the total and privately administered pension funds play a limited role in the adjustment process with the speed of adjustment at minus 0.35. Thus, a 1% shock in any of the explanatory variables cause a decrease of 0.35% in consumption expenditure over that period.

These results are similar to the results from the basic extended life cycle model by Feldstein (1974 and 1995:5). Because of this similarity it was decided to use only the Feldstein extended model (Table 3) to evaluate the effects of taxes on pension funds and benefit on saving and consumption. The results in Table 3 show that in the South African case, almost all household disposable income is spent on consumption (0.98).

The marginal propensity to consume (m.p.c.), for payouts from retirement funds both privately and officially administered, (Regression 1) amounts to about 0.06. This is more than double the m.p.c. (0.028) for the US as found by Feldstein (1995:12) and is statistically significant. These results suggest that such benefits have a significant impact on consumption in South Africa and that the way in which they are taxed, impact strongly on savings via consumption during the life cycle of individuals.

The effect of retirement benefits were analysed by differentiating between various retirement schemes. Regression 1 (Table 3) is re-estimated in Regressions 2 and 3 substituting total benefits paid, with benefits paid by each of the different types of schemes. Thus, in Regression 2 (with benefits from pension and provident funds privately administered (TPAPPPC) it is shown that the marginal propensity to consume for pension

<table>
<thead>
<tr>
<th>Variables</th>
<th>Regression 1</th>
<th>Regression 2</th>
<th>Regression 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>YdPC</td>
<td>0.984 (0.1798)</td>
<td>0.931 (0.1595)</td>
<td>0.656 (0.3337)</td>
</tr>
<tr>
<td>YdPC(-1)</td>
<td>0.445 (0.1518)</td>
<td>0.401 (0.1360)</td>
<td>0.486 (0.2888)</td>
</tr>
<tr>
<td>TBENPC</td>
<td>0.055 (0.0063)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TPAPPPC</td>
<td></td>
<td>0.112 (0.0111)</td>
<td></td>
</tr>
<tr>
<td>TPPFAPC</td>
<td></td>
<td></td>
<td>-0.333 (1.4004)</td>
</tr>
</tbody>
</table>

(Standard errors in parenthesis)
payments, now increases to 0.11. This is almost double the marginal propensity to consume as measured in Regression 1 and is statistically significant. The results imply that for each Rand paid as benefit by a privately administered pension fund, 11 cents will be spent on consumption.

In Regression 3 (Table 3) officially administered pension and provident funds (TPPFAPC) are substituted for total benefits (TBENPC). The results show that the marginal propensity to consume now changes to minus 0.33. However, it has the incorrect sign and is not statistically significant with the result that a separate analysis of such savings has been discarded from the exercise.

The next step was to apply the regression results and analyse the effect of retirement schemes on consumption and savings for retirement in South Africa.

Following Feldstein (1974:919-21) the effects of taxes were calculated on pension and provident funds on savings, by comparing the results in two different years namely, 1996 (one year after the Katz Commission and Smith Committee reports) and 2003, eight years later.

The results show that pension payments received, contributed to increased consumption to the amount of R1,56 billion during 1996 and R2,79 billion during 2003, implying a reduction in saving of the same order by those who received the benefits. In 1996, contributions to pension funds reduced consumption by R25,8 billion with a R420 million reduction in saving for the year 1996. In 2003, consumption decreased by R40 billion due to such contributions, with savings R651 million lower.

In 1996 the net effect of pension payments received and contributions made to such funds, amounted to an increase in consumption of R1,98 billion and R3,441 billion in 2003. This implies that potential household discretionary saving was reduced by 4,0% in 1996 and by 6,92% in 2003. These results are comparable to findings from studies for a number of other countries. Feldstein’s (1995:12) study for the US, for example, indicates that programmes aimed at retirement saving, crowd out personal saving. The decline in household saving in South Africa is also supported by time-series analyses done by Aron and Muellbauer (2000:526) and Prinsloo (1994, 2002:27).

The results in Regression 2 show that discretionary household saving is crowded out more when private and public funds are combined. When the results from Regression 2 (shown in the fifth row of Table 3) are applied to the monetary values of privately administered funds, it shows that consumption increased by R2,0 billion in 1996 and by R3,6 billion in 2003, respectively. This implies a reduction in saving by the same amount during these two years. By repeating the exercise for privately administered funds it is found that the combined effects on saving was R3,0 billion and R5,2 billion for 1996 and 2003, respectively. This implies a reduction in potential saving of 5,3% for 1996 and of 10.1% for 2003.

Expanded model to include the effect of fiscal deficits and unemployment

In an attempt to test for the stability of the coefficient of the explanatory variable pension benefits received, we also include the variables unemployment and the budget deficit.
were included in the functions in Table 3. Not only does this step provide for a more comprehensive explanation of consumer behaviour, but in the case where pension payouts have not been provided for, the social security burden of the state will increase. To accommodate the level of unemployment an interacted unemployment-\textit{per capita} disposable income variable (Y$_d$\text{UN}) was used. The findings in Table 4 show that the coefficient on total benefits paid now declines from 0.055 in the preceding model to 0.036 (Test 1) and remains statistically significant. However, the coefficient on the interacted unemployment variable has the wrong sign and magnitude although statistically significant. This result is similar to that found by Feldstein (1995:4-5) in terms of the robustness of these coefficients representing social security, but differs in terms of the significance of the interacted variable. Regression 2 was re-estimated with the interacted unemployment variable and it was found that the coefficient on pension and provident funds privately administered, drops from 0.11 to 0,09 and remains statistically significant, whilst the coefficient on the interacted variable is positive and insignificant (see Table 4, Test 4).

Regression 1 was re-estimated with the real per capita government deficit (gdefPC) (Test 2) and find that the coefficient on retirement benefits (total) only changes marginally from 0,055 to 0,053, whilst remaining statistically significant. The coefficient on the government deficit, however, is positive and statistically significant. Re-estimating Regression 2 with the real per

\textit{Table 4: Dependent variable – ConsPC (Sensitivity Tests for the model in Table 3)}

<table>
<thead>
<tr>
<th>Variables</th>
<th>Test 1</th>
<th>Test 2</th>
<th>Test 3</th>
<th>Test 4</th>
<th>Test 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>YdPC</td>
<td>0.911</td>
<td>0.847</td>
<td>0.972</td>
<td>0.895</td>
<td>0.821</td>
</tr>
<tr>
<td></td>
<td>(0.1736)</td>
<td>(0.1667)</td>
<td>(0.1893)</td>
<td>(0.1596)</td>
<td>(0.1550)</td>
</tr>
<tr>
<td>YdPC(-1)</td>
<td>0.439</td>
<td>0.343</td>
<td>0.448</td>
<td>0.407</td>
<td>0.325</td>
</tr>
<tr>
<td></td>
<td>(0.1434)</td>
<td>(0.1393)</td>
<td>(0.1546)</td>
<td>(0.1342)</td>
<td>(0.1301)</td>
</tr>
<tr>
<td>TBENPC</td>
<td>0.036</td>
<td>0.053</td>
<td>0.056</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0105)</td>
<td>(0.0056)</td>
<td>(0.0075)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TPAPPPC</td>
<td></td>
<td></td>
<td>0.088</td>
<td>0.108</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.0209)</td>
<td>(0.0105)</td>
<td></td>
</tr>
<tr>
<td>YdUN</td>
<td>12.4672</td>
<td></td>
<td>7.963</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(5.8786)</td>
<td></td>
<td>(5.9185)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GdefPC</td>
<td></td>
<td>0.503</td>
<td></td>
<td>0.383</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.1706)</td>
<td></td>
<td>(0.1607)</td>
<td></td>
</tr>
<tr>
<td>CdurgPC</td>
<td></td>
<td></td>
<td>0.115</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.360)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Standard errors in parenthesis)
capita government deficit (Test 5), we find that the coefficient on pension and provident funds privately administered is essentially unchanged (0.325 compared to 0.343) and the coefficient on the government deficit is lower but positive and statistically significant.

The results are mixed. Some are comparable with Feldstein’s and other studies whilst others are not. These differences may be attributable to differences in the structures of retirement schemes existing in the two economies.

POLICY IMPLICATIONS

The policy implications for South Africa are similar to those recorded in studies of other countries. Firstly, since social security incentives such as tax deductible pension contributions could reduce discretionary savings, any increase in such incentives may contribute to the crowding out of discretionary saving. Also since individuals strive to sustain their standard of living (and therefore consumption) during their lifetimes (according to the life cycle hypothesis), any change in the tax regime that affects the discounted value of retirement benefits, will impact on individuals’ motivation to save for retirement with a possible increase in consumption expenditure.

In view of the fact that those in the higher income groups may save for retirement (through alternative savings schemes such as investment in property) it could be viable to also investigate the introduction of incentives for the lower income groups. Incentives for higher income groups could be reduced, leading to a process that would contribute towards the narrowing of the income gap between lower and higher income groups. Policymakers should therefore specifically consider those involved in informal economic activities (who mostly belong to the lower income groups) since without some form of retirement schemes, they simply become a burden to the fiscus if not taken care of through the extended family system.

CONCLUSION

The findings in the econometric analysis confirm that consumer behaviour is sensitive to pension payouts by the retirement industry. Not only does it impact directly on consumption because of the high level of the marginal propensity to consume, but it also comforts consumers with peace of mind regarding loss of income after retirement, to the extent that they are encouraged to spend more and save less. Tax incentives implemented to encourage individuals to provide for income during retirement, may actually encourage consumption expenditure, with lower levels of discretionary saving. The current tax regime only provides incentives to registered taxpayers in the higher income categories, whilst most South Africans are largely dependent on care during old age through the extended family system, and grants from the state. The ETT system of retirement taxes in South Africa seems to be in line with best practice in the rest of the world, but the middle T (tax on the return on invested retirement funds), could contribute towards disillusionment amongst members of pension schemes regarding the after tax value of their retirement savings that affect their consumption and saving behaviour negatively, from a national saving point of view.
NOTES

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BIBLIOGRAPHY


Atkinson, M.E., Creedy, J. and Knox, D.M. *The equity implications of changing the tax basis for pension funds*. NBER.


Treasury. 2002. South Africa National Treasury study into the taxation of retirement savings, discussion draft – August (Confidential).