



The Impact of Retirement Benefits on Consumption and Saving in South Africa

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Abstract

In this paper we empirically analyse the impact of retirement benefits on consumption and personal saving in South Africa using the Feldstein 1974 specification and procedure. By using a basic extended Ando-Modigliani life cycle model we show that the introduction of retirement programs crowds out discretionary household saving and consumption of contributors to such programs. There against, benefits paid by these programs contribute positively to consumption with a concomitant decline in the national pool of savings.

However, taxes on retirement benefits affect the discounted value thereof and any change in such tax policy would therefore affect the saving behaviour of contributors in the opposite direction of the tax policy. We use time series data on consumption per capita, disposable labour-income per capita and pension and benefit payments from provident funds both public and privately managed. Using OLS, we find that estimates of retirement benefits are robust when regressed with the per capita government deficit and per capita durable consumption. The estimates are also stable when regressed with the full Barro specification (which includes the per capita government deficit, per capita durable consumption expenditure and the product of unemployment and per capita disposable income).

JEL Classification: H; H5; H55

Keywords: social security, pension funds, retirement, taxes, consumption, saving, South Africa

1 Introduction

With the ageing of the “Baby Boom” population, budget priorities are switching towards increased social spending. Many governments are initiating reforms in their social security programs to ensure that individuals enjoy quality retirement with a smaller burden on government to care for the aged. Such social security program reforms (with mandatory contributions) are necessary to ensure that individuals with low income and therefore also low levels of discretionary saving be taken care of after retirement. In many of these cases governments allow different concessions for individuals, with the cost carried by government in terms of foregone revenue.

South Africa is now in the process of seeking ways to assist individuals in the lower income groups to be able to save for their retirement. The Katz Commission (1995) and the Smith Committee (1995) also recognized and emphasized the important role of pension funds for retirement. Most recently a discussion paper by the National Treasury of South Africa published in March 2006, highlights the role of retirement funds and recommends that more competition in the retirement industry (this is between the suppliers of the retirement products) be allowed including a gradual setting of minimum values for early termination. In its “Second discussion paper” (February, 2007) The

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National Treasury of South Africa suggests the implementation of a social security and retirement funding system which is more inclusive and in which saving, risk pooling, self-reliance and social solidarity will be more firmly rooted.

Thus, the question is to what extent mandatory saving would complement or substitute discretionary saving to provide for retirement and also contribute to national saving. There is, for example, a view that higher saving rates for some East Asian countries and China could be attributed, in part, to compulsory saving for retirement (Loayza, *et. al* 2000).

The rest of the paper is organised as follows: section 2 deals with the general concepts regarding tax practises on social security funds. Section 3 looks at the tax treatment of pension funds in South Africa. Section 4 investigates the effect of retirement benefits paid by pension and provident funds on consumption and saving, using a simple life cycle model pioneered by Ando and Modigliani (1963). Section 5 concludes with some policy implications.

2 Tax Practices on Social Security Schemes

Due to the ageing of the population and high levels of unemployment, government expenditure is under pressure to provide minimum standards of living to that part of the population with low or no income and who, therefore, lacks accumulated savings for retirement or unemployment insurance.

In many countries the ageing of the population has been followed by a decline in national saving rates (Loayza, Schmidt-Hebbel and Servén, 2000). Such a decline in saving rates constrains the performance of the economy where governments extract tax revenue to finance expenditures on social insurance (protection) programs. As a result mandatory retirement contributions have been implemented in many cases in order to provide income to the aged. Therefore, contributions to retirement funds are regarded as crucial to provide for a reasonable standard of living during old age. However, the macro implications of such mandatory saving policies are not clear.

Some countries rely heavily on the availability of long-term saving instruments for retirement as an important vehicle to increase national saving (Krever, 2002). Since these are seen as long-term saving instruments, the question is what fiscal treatment they should be given? One view is that these kinds of savings can only be encouraged by a tax dispensation embodying appropriate incentives. Whether such saving is available for the financing of investment programs as in the case of discretionary saving is a contentious issue but not discussed in this paper. The question is to what extent the returns on retirement saving could be taxed within the parameters of tax neutrality and the impact of tax on the intrinsic value of the savings (Burman, 2002). Therefore, a brief synopsis of the requirements of a “good tax system” may be useful to illustrate the margins with which taxes can be used as incentive to boost savings for retirement.

2.1 Requirements of a Good Tax System

In assessing how taxes on retirement benefits may affect saving, the following general principles of a sound tax system have to be considered (Treasury, 2002):

1. Economic efficiency: to ensure that the tax system minimally interferes with economic activity, thereby optimising the allocation of scarce resources and minimises distortions in the economy (allocative efficiency).
2. Administrative efficiency: administrative costs borne by the revenue authority and compliance costs for taxpayers should be minimised.
3. Revenue adequacy: the tax system should raise sufficient revenue for government to meet its expenditure commitments.

4. Equity: tax levied must relate to the ability to pay, that is individuals in similar purchasing power positions should carry an equal tax burden (tax progressivity - Jha, 1998).
5. Stability: the tax system should be such that stability in the revenue base is assured. The broader the tax base, the less the risk of instability of revenue.

Some of these principles may be conflicting, and policymakers have to identify and balance such conflicting objectives.

2.2 The tax treatment of retirement benefits

The most commonly used tax regime applicable to retirement benefits in OECD countries is the traditional EET (“Exempted” when a contribution is made (the taxpayer is not taxed on the income which is “transferred” to the pension fund), tax “Exemption” on funds’ investment income and “Taxes” on received benefits) system, where accumulated benefits from pensions are fully taxed at retirement. This tax method for pension funds is not favourable in an environment where government is under financial pressure (as in most developing countries), and the level of contributions and pension assets are growing, since it defers tax revenue to when individuals start receiving their benefits. Because of this limitation some countries have considered different types of tax structure like TEE (“Taxes” on contributions) in other words, the contribution is made to the pension fund out of after-tax income, tax “Exemption” on funds’ investment income and tax “Exemption” on benefits). In this way pensions are taxed when contributions are made and exempted when received. The TEE tax system raises revenue at the time of contribution, but the revenue is less than in the case of EET, since in the latter case the tax includes the earning on savings invested. However, both systems allow the individual to receive equal benefits. For example, suppose a contribution of R10 is taxed at 10% and earns a 10% return to the contributor living one period ($R10 - 10 \cdot 0.1 = R9$ after tax) when the contribution is made with benefits received equalling $R9 + 9 \cdot 0.1 = R9.90$. When taxed according to the EET system the tax is $R10 + 10 \cdot 0.1 = R11$ with benefits received equalling $R11 - 11 \cdot 0.1 = R9.90$. It is possible, however, that government could structure the tax system in order to affect perfect neutrality between different permutations (such as TTT, EET, etc) with respect to accumulated net benefits, but in practice this is unlikely. These results could be generalized to multi-periods.

Other variants of tax treatment of retirement saving are ETT (“Exempt”, “Tax”, “Tax”) and TTE (“Tax”, “Tax”, “Exempt”) systems. These two systems provide the same benefits to individuals but revenue is higher with the ETT than with the TTE systems. With these two forms of tax treatment individuals receive less benefits compared to those received under EET or TEE. However, government revenue is higher under ETT and TTE than under EET and TEE¹.

Atkinson, Creedy, and Knox (1998) conclude that when comparing the Australian approach to the tax treatment of retirement benefits to the EET of OECD countries, the latter performs better with regard to accumulated benefits because of the nature of the retirement tax system. The Australian case is based on “Tax”, “Tax”, “Tax” (TTT), that is, “Taxes” on contributions, “Taxes” on funds’ investment income and “Taxes” on 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 revenue from such savings. Nevertheless, the authors agree that there are minimal differences between the OECD and the Australian tax structures, when assessed in terms of the aggregate measures (Kakwani index) of lifetime income, used to assess the progressivity within the cohort of full time workers. Thus, when comparing TTT to EET the tax system that any government chooses depends on the policymakers’ objectives. If the objective is to collect more revenue the ETT or TTT (the Australian system) will be preferable, but if the objective is to provide individuals with better standards of living during

¹For more details see Dilnot, A. (1992)

retirement, then the OECD (EET system) seems to be preferred from the viewpoint of the well being of retired individuals.

The evaluation of the tax treatment of retirement benefits is important in terms of the national policy objective for retirement funding. Because the provision of retirement benefits is sensitive at the individual level, the system of providing for retirement benefits must have sufficient internal coherence to ensure its long term sustainability. Thus, to guarantee the sustainability of providing retirement income, many governments offer different incentives related to the different assets in which pension funds invest, allowing for investment diversification and avoiding arbitrage. The latter is because incentives are given to funds and not assets. Funds with higher tax incentives could buy assets from funds with lower tax incentives and make a profit. However, since government offers equal incentives to various funds such a possibility of arbitrage between different funds and assets investment is not possible.

3 Tax treatment of Pension Funds in South Africa

In order to comply with the general principles identified by the Smith Committee (1995), the South African government committed itself to the following tax treatment of retirement savings:

1. Consistent treatment of private and public sector funds.
2. Neutrality between forms of retirement provision.
3. Minimisation of opportunities for tax arbitrage.
4. An incentive for lifetime annuities.
5. Taxation of income as it arises (given the EET system) rather than when paid

The tax dispensation with regard to retirement provision 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, on average, government had lost R11 billion in revenue per year because of the generous tax treatment of pension funds. The Katz Commission recommended the overall retirement saving contribution rate to retirement funds to be capped at 22.5 per cent (with 7.5 per cent per employee contribution, qualifying as a tax deduction and 15 per cent per employer). Furthermore, the Commission recommended that a tax on retirement funds be implemented at a rate of 30 per cent on their taxable profits.

Retirement funds in South Africa consist of pension funds, provident funds and retirement annuity funds, registered under the provision of the Pension Funds Act 1956 (Treasury, 2002). Until the 2007/08 financial year contributions to these funds have been subjected to the ETT (“Exempt” “Tax” “Tax”) tax system, i.e. exempted when the contribution is made, a tax on the fund’s investment income and then a tax on benefits paid. In 2004 members of retirement funds amounted to 8,349,318, of which 7,025,125 were active. It was estimated that assets worth R720 billion were managed by retirement funds during that year (*Business Report, 22/12/2004*). In South Africa, over 70 per cent of those in formal employment are members of private retirement funds (Treasury, 2002).

4 Tax on retirement benefits and its impact on consumption and saving behaviour.

Pre-empting the outcome of the research results one would assume that taxes on benefit payments negatively affect consumption² - saving decisions during the life cycle of an individual with such taxes resulting into a bias towards investment in assets that are less taxed or tax-exempt. In this regard the impact on saving is more severe within low-income groups, whose capability to save for retirement is almost non-existent. Thus, an adequate form of tax treatment through incentives to save for retirement, which also includes low income groups, seems to be of utmost importance. Some authors argue (see for example Krever, 2000) that individuals with higher income tend to save even without inducement, while low income individuals find it difficult to save and rather treat any such inducements as a tax. An inducement of this kind is regarded as a tax since saving for retirement does not reflect as such in the standard individual consumption-saving decision. Therefore, any decision outside this “normal” decision-making process is considered a tax which affects lifetime consumption and saving behaviour. The result is that such incentives only encourage saving for retirement by the middle-income groups (Krever, 2002). However, by taxing retirement benefits even the latter group may be encouraged to substitute current consumption for future returns on investment especially if such taxes are relatively high.

5 Quantifying the impact of retirement saving on consumption and personal saving

In their canonical model Ando and Modigliani (1963) assume the utility of individuals to depend on their planned bequests (a homogenous function of planned bequests and planned consumption). Secondly, “the resources the individuals channel for bequest are an increasing function of the individual’s resources, relative to the average level of resources of his/her age group”. Thus, the Ando and Modigliani model implies that individuals strive to maintain their standard of living by adjusting their consumption and saving decisions over their entire life cycle.

The model also specifies consumption as a function of disposable wage income and non-wage or property income. Using the Ando-Modigliani specification, many other studies have been conducted. Feldstein (1974), in one of the most cited studies in this regard, extended the Ando-Modigliani specification to include the effect of social security wealth on consumption. Barro (1978) proposed another modification to the study by Ando and Modigliani and the Feldstein specifications to include the effect of per capita government surpluses and real per capita consumption expenditure on durable goods. He suggested that unemployment be entered into the equation as the product of the unemployment rate and the level of real per capita disposable income. The reasoning behind this (within the context of a macroeconomic single equation model) is to discount the effect of a change in the unemployment rate on real per capita disposable income. For example, higher rates of unemployment would lower per capita disposable income and therefore, the effect of retirement benefits on the consumption equation would be sensitive to the levels of unemployment.

Given its emphasis on social security, we decided to use the Feldstein’s (1974) specification to investigate the extent to which retirement benefits in South Africa affected personal consumption and saving between 1970 and 2003. Consumption is estimated as a function of disposable labour-income and pension and provident benefits (both official and privately administered):

$$\text{ConsPC} = f(Y_d\text{PC}, Y_d\text{PC}(-1), \text{TBENPC})$$

where ConsPC is real per capita consumption, $Y_d\text{PC}$ is real per capita disposable labour income and TBENPC is real per capita total pension and provident fund benefits. To test for the sensi-

²Taxes on retirement benefits will have important effects on the way individuals look at saving for retirement. In other words, taxes on retirement benefits affect the consumption-saving decisions of an individual.

tivity of the retirement benefits coefficient in the model, we re-estimate the consumption equation above, taking into account the Barro (1978) suggestion. Thus we enter the product of the unemployment rate and per capita disposable income (Y_dUNPC), the government surplus/deficit per capita ($gdefPC$) and per capita consumption expenditure on durables ($CdurgPC$).

(Note: we do not differentiate between benefits paid and the stock of wealth and assume that an increase in the former will automatically increase the stock of wealth. The impact thereof is that consumption of retirees is affected accordingly.)

5.1 Data and Empirical Results

All data used in this study have been obtained from the *South African Reserve Bank (SARB) Quarterly Bulletin* and data on population numbers were sourced from the publication of the *World Development Indicators (2005)*, comprising a range of 34 years.

We conducted unit root tests on 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, consumption per capita and both total and privately administered pension benefits, which are $I(1)$. The results of the long-run equation obtained from the Engle-Granger two-step estimation procedure are shown in Table 1, with all variables in natural logarithms. Table 2 shows the results of the Error Correction Model (ECM) and the coefficients of $ResTBENPC$ and $ResTPAPPPC$ are adjustment coefficients or short-run dynamic adjustments for regressions 3 and 4 respectively. The results show that total and privately administered pension benefits play no role in the adjustment process and the speed of adjustment is -0.35, in other words, with a one per cent shock in the explanatory variables, 35 per cent of the disturbance in consumption is adjusted in the first period.

These results are similar to the results from the basic extended life cycle model by Feldstein (1974 and 1995). Because of this similarity we decided to only use results from the extended Feldstein model (Table 3) to evaluate the effect of pension benefit payments on consumption (and thus on personal saving) in South Africa. The results in Table 3 show that almost all household disposable wage income in South Africa is spent on consumption (0.98). This relatively high marginal propensity to consume has increased over the past number of decades, probably reflecting access to credit by those who have managed to become part of the “first economy” but also the sizeable proportion of income earners in the lower income categories (Prinsloo, 1994, 2002 and Aron and Muellbauer, 2000).

In the case of total payouts from retirement funds both privately and officially administered (Regression 1 in Table 3) the marginal propensity to consume amounts to about 0.06, which is more than double the coefficient (0.028) for the US as estimated by Feldstein (1995) and is statistically significant.

Regression 1 is re-estimated in Regression 2 (see Table 3) by substituting the benefits paid by pension and provident funds privately administered for total benefits paid by (TPAPPPC). The reason for such manipulation is to find the most appropriate specification and most importantly to separate the effects. For example, as concluded below it seems as if pension and provident funds privately administered are the most dominant ones regarding its impact on consumption. In this regression the marginal propensity to consume increases to 0.11, which is almost double the marginal propensity to consume as measured in regression 1 and is statistically significant. The results show that for each percentage change in benefits paid by a privately administered pension fund total consumption expenditure will change in the same direction by 0.11 percent.

Using the estimated coefficients of the Feldstein based model we calculated the effects of pension and provident fund benefits paid on consumption and savings with saving merely the residual between income and consumption in 1996 (one year after the Katz and Smith recommendations) and then again in 2003. (We use these dates in order to measure the effect of proposal changes in the relevant legislation). Using the coefficient for total per capita benefit payments in regression 1 (Table 3)

it can be said that the total benefits paid contributed towards an increase in total consumption expenditure of more or less an equal amount (with a concomitant amount of dissaving). However, if no contributions had been made, only R26 225 million would have been available for consumption and discretionary saving and given the consumption and saving coefficients, R25 806,4 million and R416,6 million would have been consumed and saved, respectively.

The combined effect on saving of benefits received from and contributions made to pension and provident funds during 1996 was R1.98 billion and in 2003 it increased to R3.441 billion. This implies that household potential discretionary saving was reduced by 4.0 per cent in 1996 and by 6.92 per cent in 2003. These results are comparable to findings from studies for other countries. Feldstein's (1995) study for the US for example, indicated that programs 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) and Prinsloo (1994, 2002).

It should also be noted that the ratio of benefits received to contributions made increased from 108,7 to 124,7 between 1996 and 2003. The reason is probably the increase in returns on retirement investment in the latter period compared to the first period. Also, it indicates that a substantial portion of benefits are not backed by contributions and rely to a large extent on investment returns which might be problematic from a sustainability point of view.

Since a tax on benefits reduces the returns on such savings, individuals might seek other forms of savings like buying property or investing in assets other than pension and provident funds, pending on the level of taxation. Thus, the tax treatment given to pension funds in South Africa can have adverse effects on saving for retirement through the pension funds, depending on how individuals perceive their benefits during retirement. Retirement saving is affected by the way in which individuals perceive the tax system applied to retirement funds, for example whether "EET", "TEE", "TTT", etc. If the perception is that the tax system would be beneficial, individuals would tend to save more via these funds and *vice versa*.

5.2 Tests for the sensitivity of social security in the model.

We include the Barro (1978) modification by adding to the Feldstein specification unemployment, the government deficit and consumption expenditure on durable goods that may also influence the implied impact of social security on saving. The estimates are shown in regression 1 in Table 4, with the interacted variable unemployment-per capita disposable labour-income (Y_dUN). The coefficient of total benefits paid declines from 0.055 in the previous regression in Table 3 to 0.036 but remains statistically significant, while the coefficient of the interacted unemployment variable has the wrong sign and magnitude although statistically significant. This result is similar to that found by Feldstein (1995) in terms of robustness of the coefficient of the variable representing social security but differs in terms of significance from the interacted variable. We re-estimate regression 2 with the interacted unemployment variable and find that the coefficient of pension and provident funds privately administered, drops from 0.11 to 0.09 but remains statistically significant, while the coefficient of the interacted variable is positive and insignificant.

We then re-estimate regression 1 with the real per capita government deficit ($gdefPC$) and find that the coefficient of retirement benefits (total) changes only marginally from 0.055 to 0.053 while remaining statistically significant. The coefficient of the government deficit, however, is positive and statistically significant. Re-estimating regression 2 with the real per capita government deficit, we find that the coefficient of pension and provident funds privately administered is essentially unchanged and the coefficient of the government deficit is positive and statistically significant. We then repeat the exercise by estimating regression 1 with per capita consumption expenditure on durable goods ($CdurgPC$) and the results show that the coefficient of retirement benefits (total) does not change much and remains significant, while the coefficient of consumer durable goods is positive but not statistically significant. By including per capita consumer expenditure on durable goods in regression 2, the coefficient of pension and provident funds privately administered slightly

increases to 0.12, but the coefficient of C_{durgPC} is not significant.

The estimates show mixed results with only some of the findings comparable to that of Feldstein and others. By repeating the exercise for both regressions 1 and 2 (Table 4 – full tests 7 and 8) with the Barro (1978) full specification, we find that the coefficient for total pension benefits received declines slightly to 0.04, with the coefficient of expenditure on durable goods not significant. The coefficient for benefits received from pension and provident funds privately administered in the full Barro (1978) specification declines to 0.05 but remains statistically significant, while the coefficients for the variables government deficit and consumer expenditure on durable goods are not significant. In Table 5 we present a sensitivity test of the results from the Engle-Granger two-step estimations which confirm the previous results. The coefficient of pension and provident funds privately administered in regression 8 remains unchanged and is statistically significant at 1 per cent.

6 Conclusions

In this paper we analyse the impact of retirement benefits on consumption and personal savings in South Africa by using the extended traditional life cycle model of Ando and Modigliani (1963). As explained in the first part of the paper different tax regimes would impact differently on retirement saving behaviour but due to a lack of data required for empirical analysis this impact could not be measured. Thus, given the existing tax regime in South Africa (EET) we limit the analysis to benefits paid by private and government pension funds and its impact on consumption and saving with the latter simply the residual between income and consumption expenditure. Our results suggest that both in 1996 and 2003, social security (as represented by retirement benefits received) crowded out discretionary savings by 4,3 per cent and 7,5 per cent, respectively. Thus, discretionary saving is largely substituted by compulsory saving through contractual contributions to retirement programs. Unfortunately, these programs are not inclusive with a large portion of the economically active population excluded from it. With discretionary saving being the backbone of the saving pool from which investment has to be financed, the macro economic implications of this phenomenon with regard to provision for retirement needs to be investigated. Given the fact that in a life cycle hypothesis context individuals tend to maintain their consumption patterns during their life span, changes in the tax regime that affect the returns on such contractual saving will change consumption behaviour in the opposite direction. Since a tax on benefits reduces the returns on such savings, individuals might seek other forms of savings like buying property or investing in assets other than pension and provident funds – a phenomenon that could clearly be observed during the past number of years.

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

Variables	Regression 1	Regression 2
	0.933	0.905
LnYdPC	(0.0066)	(0.0086)
	0.060	
LnTBENPC	(0.0068)	
		0.090
LNRTPAPPPC		(0.0090)

(Standard errors in parenthesis)

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

Variable	Regression 3	Regression 4
	-0.351	
ResTBENPC(-1)	(0.1334)	
		-0.495
ResTPAPPPC(-1)		(0.1269)
	0.469	0.442
D(lnYdPC)	(0.1112)	(0.1075)
	0.324	0.411
D(lnConsPC(-1))	(0.1429)	(0.1233)
	-0.230	
D(lnConsPC(-4))	(0.1314)	

(Standard errors in parenthesis)

Table 3: Dependent Variable - Per Capita Consumption (ConsPC) – Feldstein (1974, 1995) Specification

Variables	Regression 1	Regression 2
	0.984	0.931
YdPC	(0.1798)	(0.1595)
	0.445	0.401
YdPC(-1)	(0.1518)	(0.1360)
	0.055	
TBENPC	(0.0063)	
		0.112
TPAPPPC		(0.0111)

(Standard errors in parenthesis)

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

Variables	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Full test 7	Full test 8
	0.911	0.847	0.972	0.895	0.821	0.869	0.709	0.672
YdPC	(0.1736)	(0.1667)	(0.1893)	(0.1596)	(0.1550)	(0.1648)	(0.1743)	(0.1946)
	0.439	0.343	0.448	0.407	0.325	0.409	0.388	0.406
YdPC(-1)	(0.1434)	(0.1393)	(0.1546)	(0.1342)	(0.1301)	(0.1346)	(0.1348)	(0.1492)
	0.036	0.053	0.056				0.037	
TBENPC	(0.0105)	(0.0056)	(0.0075)				(0.0099)	
				0.088	0.108	0.122		0.047
TPAPPPC				(0.0209)	(0.0105)	(0.0135)		(0.0187)
	12.4672			7.963			16.21	22.92
YdUN	(5.8786)			(5.9185)			(7.3840)	(7.7246)
		0.503			0.383		0.333	0.335
GdefPC		(0.1706)			(0.1607)		(0.1803)	(0.2051)
			0.115			0.423	0.632	0.648
CdurgPC			(0.360)			(0.3272)	(0.4046)	(0.4575)

(Standard errors in parenthesis)

Table 5: Dependent variable - lnConsPC (Sensitivity tests for the model in Table 1)

Variables	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Full test 7	Full test 8
	0.927	0.937	0.882	0.905	0.911	0.819	0.886	0.837
LnrealYdPC	(0.0096)	(0.0055)	(0.0373)	(0.0099)	(0.0074)	(0.0363)	(0.0408)	(0.0370)
	0.051	0.059	0.068				0.06	
LnTBENPC	(0.0128)	(0.0055)	(0.0087)				(0.0107)	
LNTPAPPP				0.089	0.088	0.109		0.099
C				(0.0183)	(0.0077)	(0.0113)		(0.0148)
	0.033			0.003			0.023	0.011
LnydUN	(0.0385)			(0.0379)			(0.0383)	(0.0345)
		0.00005			0.00004		0.00004	0.00003
GdefPC		(0.00001)			(0.00001)		(0.00001)	(0.00001)
			0.057			0.092	0.053	0.076
LnCdurgPC			(0.0417)			(0.0375)	(0.0409)	(0.0371)

(Standard errors in parenthesis)