

Retirement schemes and economic growth in sub-Saharan countries: a panel data analysis

By

NHABINDE, VASCO CORREIA

Submitted in partial fulfilment of the requirements for a

PhD DEGREE (ECONOMICS)

in the

FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES

at the

UNIVERSITY OF PRETORIA

PRETORIA July 2007



To

My Father and Mother

Your absence is part of my inspiration



Acknowledgements

Naturally, work of this dimension cannot be done without the support of many other people. Thus, I would like to express my sincere gratitude towards several individuals who directly or indirectly contributed to the completion of this study.

My special acknowledgement to Professor Niek J. Schoeman (my academic supervisor), who read, commented on and made numerous adjustments to this study. Thanks for his effort and time given to the study.

I would like also to thank JC Pointon who provided me with financial support in 2005. In the same vein I express my gratitude to African Economic Research Consortium (AERC) based in Nairobi (Kenya) by providing a grant to conduct this research and also my warm gratitude to Prof. Caner from the University of Bilkent in Turkey who also provided financial support in 2007. To Univerdidade Eduardo Mondlane muitos obrigados (thanks) for all it has done to help make this study become reality.

To my family (Carlota, Edson, Vania, Fernanda, Amosse, Iria, Sara, Fernando, Adelina and Balbina) for boundless moral support, sacrifice, devotion and emotional support, I express my sincere gratitude to all that they have done. Finally, to Carlota, Edson, Vania and Fernanda I express my gratitude for the courage they have given me and accepting me even after long periods of abandoning them.



Summary

Retirement Schemes and Economic Growth in Sub-Saharan African Countries: A Panel Data Analysis

By

Nhabinde, Vasco Correia

Supervisor: Prof. Niek J. Schoeman

Department: Economics

Degree: PhD in Economics

An understanding of the rationale for providing retirement schemes, their principal functions and different methods of financing them is crucial to structuring and implementing sustainable retirement schemes in sub-Saharan African (SSA) countries. The fact is that the structure of economies in this part of the world is very different from that in the developed world, in that an official social net barely exists. In the developed world most countries have some or other a form of provision for retirement for the elderly. They are provided through systems like Pay-As-You-Go (PAYG) or other forms, such as pension and provident funds, social grants, etc.

However, the provision of social security in a PAYG system entails costs that are transmitted through generations. These costs arise from the methods governments use to finance the benefits promised to individuals while they are economically active. Generally, government finances the expenditure on social security obligations through current taxes



(contributions), which are levied from individuals working at present to pay the benefits to retirees. The assumption is that the population and the economy grow at the same rate. However, the reality is quite different and it often happens that revenue from current contributions is not sufficient to finance the required social security expenditure. This is especially the case where the ageing population is not replaced by a corresponding population growth.

Nevertheless, in most Sub-Saharan African Countries (SSA) the ageing of the population does not present an immediate problem. Therefore, the social security systems of these countries constitute different problems than those of the developed world. In the majority of SSA countries, social security faces the problem of outdated legislation with no provision for adjustment of cost of living (real replacement rates are very low) and in some other countries the provision of social security has only recently been implemented. Therefore, there is an urgent need to reform retirement programs in SSA countries, but these reforms do not necessarily imply privatisation and should preferably be implemented within existing programs. An example of reform is the introduction of a principal-agent type of management with clear management rules. To accompany this process, these countries should establish institutions for monitoring and law enforcement. At the same time they should promote the development of financial and capital markets as a necessary condition for having sustainable and attractive retirement programs.

Factors like underdeveloped financial and capital markets, adverse selection problems (intensified by low literacy rates (on average less than 54 per cent)), moral hazard and low per capita income, prevent the majority of the populations in SSA countries to find alternative ways of saving for retirement. Moreover, the growing migration of the young population in search of better living conditions has weakened the traditional or safe family social security structures and therefore, worsened the socio-economic conditions of the elderly population, especially in the rural areas. The growing and prosperous informal sector also has to be considered when policymakers rethink social security in the African continent.

The need for policymakers in the African continent to rethink current social security structures is fuelled by research results confirming that social security plays an important



role in the performance of economies. World Bank reports in 1994 in particular, proposed different ways of managing retirement programs and a three pillars system was suggested. One possibility is a system managed by government (similar to the present PAYG system), the second privately managed (individual accounts) and the third voluntary saving (personal saving through financial institutions, real estates, etc.). However, the debate regarding proposed reforms continues and it seems that the optimal solution is still to be devised. Research indicates that in the case of SSA countries, it is recommended that reforms start within existing systems. There are various reasons for this idea. Firstly, due to the high uncertainty of output, new systems could have far reaching macroeconomic implications. Secondly, microeconomic effects on the demand side of the economy could influence the labour market due to the availability of abundant and cheap labour. Thirdly, bailout politics are abundant in many SSA countries, which may weaken privately managed social security programs (like individual accounts).

This study analysed 14 SSA countries using panel data. The results indicate that social security programs positively affect saving in the SADC countries, but in West Africa and the full country sample, savings is affected negatively. These results have important policy implications in that West African countries need to reform their current social security systems in such a way, that they contribute to saving and the development of financial and capital markets. In the SADC countries, however, more emphasis should be placed on the development of financial and capital markets. The study finds adverse results in the growth model. In the pooled model social security crowds-out growth in per capita GDP in West African countries, but it crowds-in growth in per capita GDP in the SADC countries as well as in the full country sample. These results confirm the findings of other studies namely that no conclusive results exist with regard to the effect of social security on the performance of economies.

The model results indicate that social security has a positive effect on fertility. Thus, the results contrast the widely accepted claim that social security reduces fertility on the basis that parents tend to rely less on children as a source of income during their retirement if the social net takes care of them. This phenomenon could be caused by the perception that social security in its current format in SSA countries does not have the potential to replace children as a source of income during retirement. Another factor that may influence this



result is because of low coverage rates, the preference of many excluded individuals, mainly in the rural areas and informal sector, is still to rely on their children as a source of old age security.

Finally, the study concludes that in sub-Saharan African countries policymakers have to pay more attention to institutional arrangements that would accommodate the implementation of a proper social security system. The starting point should be reforms of existing retirement schemes. Reforms should be initiated within the existing schemes, through the introduction of the principal-agent management model with strong regulation and monitoring to ensure sound management principles. The informal sector poses a major challenge and should be included in a social security system also allowing competition from possible providers of social security products to the informal sector.

The redesign of retirement schemes should be aimed at regional integration with scale economies to be captured both at country and regional levels. This implies that the number of operators in the industry should also be considered to avoid excessive costs related to marketing and the administration of the funds. Another important conclusion is that retirement reform programs should form part of the overall strategies of poverty alleviation currently being implemented in many sub-Saharan countries.



Table of Contents

Chapter 1	1
1.1 Introduction	1
1.2 Defining Social Security	3
1.3 Justification of the Study	4
1.4 Problem Statement	10
1.5 Objectives of the Study	11
1.6 Significance of the Study	11
1.7 Hypothesis	12
1.8 Limitations	13
Chapter 2: Literature Review	14
2.1 The Rationale and Functions of Retirement Programs	14
2.2 A brief overview of retirement schemes around the world	16
2.3 Empirical Literature	30
2.3.1 Social security and saving	31
2.3.2 Social security and growth	34
2.3.3 Social security and fertility	36
2.4 Main Insights and concluding remarks	40
Chapter 3: The Nature, Problems and Potential of Social Security	
Programs in Sub-Saharan Africa	41
3.1 Regulatory Framework and Coverage	41
3.2 Funding Retirement Systems and Qualifying Conditions for Benefit Payments	44
3.3 Replacement Rates in Sub-Saharan African Countries	46
3.4 Why reforming retirement systems?	47
3.4.1 Macroeconomic effects	49
3.4.2 Microeconomic effects	52
3.4.3 Political effects	54
3.5 Alternatives for Retirement Finance	57



3.5.1 Insurance products for retirement	. 57
3.5.2 Real assets as a retirement alternative	. 59
3.5.3 Financial assets as retirement alternative	. 60
3.6 Sustainability of government finances in sub-Sahara countries	61
3.7 Main Insights and Concluding Remarks	. 66
Chapter 4: Theoretical Framework	. 68
4.1 Financing and Managing Retirement Programs	. 69
4.2 The Effects of Retirement Funds in the Life Cycle Model	. 72
4.3 Deficit Finance and Retirement Funds	. 77
4.4 The Effects of Social Security on Fertility	. 78
4.5 The Labour Market and Retirement Funds	. 80
4.6 Main Insights and Concluding Remarks	. 81
Chapter 5: Methodology	. 83
5.1 Model Specifications	. 83
5.1.1 Model specification for saving	. 83
5.1.2 Model specification for growth	. 84
5.1.3 Model specification for fertility	. 85
5.2 Data	. 86
5.3 Econometric Technique	. 87
5.4 Bootstrapping Steps	. 88
Chapter 6: Empirical Results	. 92
6.1 The Saving Model	. 92
6.1.1 Unit root testing	
6.1.2 The results of the model	. 95
6.1.3 Testing for the validity of Model 1	. 98
6.1.4 Testing for the validity of alternative models (regional grouping)	. 100
6.1.5 Bootstrapping results	. 102
6.2 An Example of Country Specificity – The Case of South Africa	
6.2.1 Introduction and model	. 108
6.2.2 Data and empirical results	. 108



6.2.3 Conclusion regarding findings on the South African case	111
6.3 Growth Model	111
6.3.1 Unit root test	111
6.3.2 The results of the model	113
6.3.3 Testing for the validity of Model 1	116
6.3.4 Testing for the validity of alternative models (regional grouping)	118
6.3.5 The results of pooled models	119
6.3.6 Bootstrapping results	122
6.4 Model for Fertility	127
6.4.1 Testing for the validity of Model 1	131
6.4.2 Testing for the validity of alternative models (regional grouping)	133
6.4.3 Bootstrapping results	135
6.5 Main Insights and Concluding Remarks	138
Chapter 7: Policy Implications and Conclusions	140
7.1 Introduction	140
7.2 An Overview of the Effectiveness of Current Social Security Systems on the	
Economies of SSA Countries	141
7.2.1 Regulatory arrangements	141
7.2.2 The impact of social security systems on saving and economic growth in S	SSA
economies	145
7.2.3 The impact of social security systems on fertility	150
7.2.4 Some specific recommendations for reform in the retirement industry	151
7.2.5 Limitation and future research	153
References	154
	167
Annexure 1: Regulatory framework and coverage	168
Annexure 2: The source of retirement funds and qualifying conditions for	
benefit payments	171
Annexure 3: Saving regression in SADC countries	190
Annexure 4: Saving regression in West African countries	196



	Annexure 5: Growth regression in SADC countries
	Annexure 6: Growth regression in West African countries
	Annexure 7: Fertility regression in SADC countries
	Annexure 8: Growth regression in West African countries
Li	st of Figures
	Figure 1: Retirement benefits/GDP ratio (1994-2003)
	Figure 2: Growth rates in GDP per capita (1994-2003)
	Figure 3: Fertility rates over the period 1994-2003
	Figure 4: Investment/GDP ratio over the period 1994-2003
	Figure 5: Cross-section data analysis
	Figure 6: Life-cycle of an individual contributing to an old age security
Li	st of Tables
	Table 3.1: Concessional Debt/GDP ratio
	Table 3.2: Government primary deficit/surplus as a percentage of GDP
	Table 3.3: Government primary deficit/surplus as percentage GDP (simulations)
	Table 6.1: Dependent variable – <i>LnRinv</i> (full and regional samples)
	Table 6.2: Dependent variable – <i>LnRinv</i> (SADC sample)
	Table 6.3: Dependent variable – <i>LnRinv</i> (West African sample)
	Table 6.4: Dependent Variable - Per Capita Consumption (ConsPC) – Feldstein
	(1974, 1995) Specification
	Table 6.5: Dependent variable – <i>GPC</i> (full and regional samples)
	Table 6.6: Dependent variable – <i>GPC</i> (full and regional samples – pooled
	regressions)
	Table 6.7: Dependent variable – <i>GPC</i> (SADC sample)
	Table 6.8: Dependent variable – <i>GPC</i> (West African sample)
	Table 6.9: Dependent variable – <i>LnF</i> (full and regional sample)
	Table 6.10: Dependent variable – <i>LnF</i> (SADC sample)
	Table 6.11: Dependent variable – <i>LnF</i> (West African sample)
	Table 7.1: Comparing the government debt performance given replacement
	Rates