GREEN PAPER NO___-2011

OPTIONS FOR REFORM OF THE PUBLIC SECTOR PENSION SYSTEM

Ministry of Finance

EXECUTIVE SUMMARY

This Green Paper on the options for reform of the public sector pension system came out of the Government's recognition that the current system poses several challenges including fiscal sustainability and administrative inefficiencies. Finding the best mix of reform option that would meet the objective of fiscal sustainability and affordability, while ensuring that benefits are adequate for the retiree has been a formidable task. In light of a major role that various stakeholders must play in the consultative process, this Paper is presented for informed discussion on the various options that are available for the reform of the public sector pension system.

The cost associated with public pension payment has been increasing. The expenditure on pension has increased from 0.4% of GDP in 1990 to approximately 1.4% of GDP in 2010. As the wage bill increases and the public sector grows, the expenditure on pension will continue to rise. It is therefore fiscally unsustainable for the Government to continue on this path, given the other expenses that it incurs in particular the high debt servicing cost.

The paper recognizes that pension reform must be addressed within the context of realities of the economic environment. In the latter half of the 1990s, the inflation rate was predominantly single digit; however, by 2008, the rate was 16.8% and fell to 11.7% in 2010. The inflation rate has had a tremendous impact on the purchasing power of the income stream of the Government pensioner. Despite ad hoc adjustments to pensions over the years, public sector pension benefits are not indexed to inflation. A decision must, therefore, be taken to introduce an indexation policy to ensure that the former worker can adequately meet his living expenses on retirement, while recognizing that such a policy will lead to an increase in pension expenditure.

The Government must also grapple with the demographics of the population as well as the inherent complexity of the pension system when considering reform. The life expectancy of the population (including the public servant) is increasing. In 2009, the life expectancy at age sixty (60) in Jamaica was 74.13 years, and in that same year 35% of public sector pensioners were older than 75 years. Therefore, the option of increasing the retirement age for the public sector worker from the normal retirement age, which is sixty (60) for the majority of the groups has to be taken under consideration. Increasing the retirement age would cut the length of time in which pensions would be paid and allow experienced personnel to continue to make valuable contribution to national development. If not carefully managed, however, this can result in higher pension expenditure, as the working life of the worker is extended.

Another major challenge is that the public sector pension system is governed by over thirty (30) pieces of legislation. Although similarities exist between the various pieces of legislation, there are areas of differences. This complexity, along with the administrative

problems due to paper records and a partially computerized database of workers, make it necessary for the reform of the system in order to improve efficiency. One recommendation is that the various pieces of legislation be harmonized with sections for special interest groups. To facilitate increased efficiency in the administration of the pension scheme, with the support of the World Bank, a programme to reengineer the administration of the pension process is underway. In addition, a computerized earnings database of the public service will be developed.

Another important issue which has been under review is whether the reform should only focus on new workers or should include existing workers as this has legal implications for the payment of the pension. In addition, key consideration in this process is the fact that the right of the current worker to a pension is clearly stated in the Constitution and as such, it poses further challenges with a systemic reform.[1]

Research showed that all reform options (parametric[2] and systemic) reduce the cost to the employer. The best option in reducing the cost involved the defined contribution reform. However, in the short and the medium term the Government would have significant transition cost[3]. In the case of the welfare of the worker, all the reform options resulted in the replacement rate being reduced. It should be noted that the current system provides benefits with an average replacement rate[4] of over 60%, which is in the range of international best practice (as outlined by the World Bank) of 40%-60%.

The paper also highlights that any reform to the public sector pension system should also be accompanied by the following:

- A thorough analysis of the National Insurance Scheme (NIS), so that the retiree can improve or at worst maintain their current standard of living. It is proposed that the basic Social Security System (NIS) should be enhanced through the development of improved funding arrangements and more efficient administrative procedures. This will facilitate the provision of more meaningful benefits on a national scale.

[1] Systemic Reform**:** A type of pension reform that replaces the old system with a new one that changes how benefits are calculated, the source of funding and the administration of the system.

[2] Parametric Reform: A reform option that retains the structure and administration of the system but changes some main elements of the parameters, these include the contribution rate or the retirement age.

[3] Transition cost: The gap between revenues and contributions that develops when some of the contribution is diverted to a new funded system while the promised benefits continue to be paid to current retirees and older workers under the old PAYG system.

[4] Replacement rate: The value of a pension as a proportion of a worker's wage for a given base period. It tells how much of a worker's income is being replaced by his/her pension.

- Individuals must play a more active role in retirement planning. As such, the paper recommends that the Government implements programmes that will better educate public sector workers of the importance of saving outside of the pension that will be provided at retirement.

The Green Paper is a first step in initiating serious thought and discussion. More comprehensive analysis based on feedback on this Paper will need to be done before further steps are taken to reform the public sector pension system.

1. INTRODUCTION

The Government, as employer, has been grappling with the problem of balancing the need for public servants to be provided with a steady income stream on retirement, while ensuring fiscal sustainability. Given the many challenges faced by the Jamaican economy during the mid 1990s to present, reforming the public sector pension system has become increasingly important.

The existing non-contributory 'pay as you go' system and the higher life expectancy mean that pension payments will continue to rise rapidly, while persistently high rates of inflation will reduce the value of pension benefits if adjustments are not made for inflation. Although a defined contributory scheme would seem to be an appropriate alternative pension system, factors such as fiscal deficits, demographic profile of the public sector workers, depth of the capital market and existing contractual arrangements between the Government and employees must be taken into consideration before the most viable policy options can be determined.

In recognition of the complexity of the tasks required to undertake this reform, the Government of Jamaica sought assistance from the World Bank for technical officers to become better equipped. Subsequently, a Steering Committee consisting of a Lecturer from the University of the West Indies, a Union Representative and representatives from the Financial Services Commission, Ministry of Labour and Social Security the Cabinet Office and the Ministry of Finance and the Public Service was formed in 2007. The purpose of this group includes coordinating the various activities linked to the preparation and implementation of the reform options and providing strategic guidelines for the design and evaluation of alternative reform options.

From the concept stage to project implementation, the World Bank has provided support such that the Public Sector Pension Reform (PSPR) was included as a component of the Social Protection Project. There are two (2) broad aspects to this component. The first element relates to the improved administration of the pension system. This aspect involves the analysis of the many pieces of legislation that determine how pension benefits are administered along with developing an improved business process and an earnings database which would help to improve the efficiency of the system.

The second aspect involved building the capacity of selected public sector workers to undertake the reform process. This meant that during a nine-month period, approximately twenty-five (25) public sector employees received training in Cash Flow Forecasting for Pensions, Defined Benefit Pension Schemes (DB), Defined Contributions (DC) and Notional Defined Contribution (NDC) Pension Schemes and Pension Reform Options Simulation Toolkit (PROST). One (1) person participated in the World Bank's

Core Course in Pension in Washington D.C. A synopsis of this course was later presented to members of the core Technical Team in one of its Workshops. A team consisting of five (5) officers from the Ministries of Finance and the Public Service and Labour and Social Security also participated in a study tour in Stockholm to examine the Swedish Pension System. A technical team was selected from participants in the extensive training program to report to the Steering Committee that has the overall responsibility for the project. The team comprises technical officers of the Ministry of Finance and the Public Service, Ministry of Labour and Social Security and the Planning Institute of Jamaica (PIOJ).

The Social Protection Specialists of the World Bank used their PROST Simulations to provide information for the various reform options that are discussed in this Paper. This Paper, which is the outcome of the entire process, will hopefully form the basis of discussions on pension reform, for public sector employees. Consequently, the first section sets the stage for the discussion by examining the historical aspect of the development of the system, in order to put the existing pension arrangements in perspective. Of critical importance are the demographics of the current workers, as well as the pension benefits and implications for rising expenditure, given the higher life expectancy of the population as well as increased wage bill. This cannot be divorced from the economic climate; therefore, the ensuing section seeks to address this. Having addressed these issues, the problems that result from the existing economic situation and the pension system are examined.

In order to propose the likely options for reform, the principles governing any viable pension reform are examined. The methodology used in developing the reforms is then discussed. While this is perhaps of a more technical nature, it is believed that an understanding of this process will lead to meaningful discussions. The Paper ends with discussion of the recommendations and conclusion.

The Green Paper is a consultative document which should facilitate discussions on the proposed public sector pension reform. This dialogue is critical to the process, as public servants who have contributed much to nation building should be allowed to participate in deliberations that will impact their future.

2. BACKGROUND

The Government provides retiring, disability and survivor benefits to eligible employees of the public sector and their beneficiaries. As a former colony, many rules that govern the existing public sector pension system are inherited from the British. Consequently, sections 132-134 of the Jamaican Constitution are dedicated to pensions.

Most public sector pension schemes are non-contributory defined benefit plans. There are some Statutory Bodies, Executive Agencies, and decentralized Public Bodies that have defined contribution pension schemes. The remaining schemes, such as the parliamentarians and parish councillors, require contributions but are defined benefit schemes. Pension benefits for each group of public sector workers are determined by a formula in accordance with the relevant provision of a specific statute. Some of the categories of workers that are covered under public sector pension schemes are:

- Civil Servants
- Teachers
- Members of the Jamaica Constabulary Force
- Municipal and Parish Council Employees
- Members of the Jamaica Defence Force

Each public sector worker is entitled to a pension from the National Insurance Scheme (NIS) which provides a first tier benefit funded by contributions from the working population. This scheme is administered by the Ministry of Labour and Social Security, in keeping with the provisions of the National Insurance Act. The total pension benefit to the public sector is therefore a combination of benefits from the NIS and the Public Sector Pension Scheme. This paper focuses on the Public Sector Pension Schemes that form the second tier and are administered by the Public Service Establishment Division of the Cabinet Office.

2.1 The Legislative Framework

There are over thirty (30) pieces of legislation that set out the policy for the award of public sector pensions. The main legislations that outline pension entitlement for public sector employees, in the case of non-contributory schemes include:

- The Pensions Act (1947)
- The Pensions (Parochial Officers)Act (1944)
- The Pensions (Teachers) Act, (1947)
- The Defence Act (1962)

In the case of contributory plans, the legislation includes:

- The Constabulary Force Act (1935)
- The Constables (Special) Act (1904)
- The Retiring Allowances (Legislative Service) Act (1961)
- The Retiring Allowances (Parish Councillors) Act (2005)

Although some categories of workers make contributions, (police, councillors and parliamentarians contribute 1.7%, 6% and 6% of salary to the Consolidated Fund respectively) there is no link between the contributions made by these workers and the benefit that is paid. All contributions made by these public sector workers are paid to the general Consolidated Fund and the pension benefits are paid from this fund.

Some public sector employees are required to contribute four percent of their annual salary towards the provision of benefits to their spouses or children in accordance with the Pensions (Civil Service Family Benefits) Act, (1976). These contributions are paid to the Consolidated Fund rather than a segregated fund. The family benefit is used as an insurance guarantee for beneficiaries of deceased public sector employees who contribute to the fund.

To be eligible for a pension, an employee must work the minimum number of years stipulated in the legislation governing the award of a pension. Although the provisions contained in various pieces of legislation that deal with the pension entitlements are similar, there are some areas of heterogeneity. One difference among them is the eligibility requirements. Civil servants, teachers, nurses and constables, must work for a minimum of ten (10) years before they are entitled to a pension while parliamentarians are required to serve two (2) full parliamentary terms or periods equal in aggregate to no less than nine (9) years before being entitled to a pension.[5] Differences in the nature of work by certain groups of workers account for these variations.

The normal retirement age for a public sector employee is sixty (60) years. However, there are provisions for early retirement and retirement on the grounds of ill-health or disability. Some categories of public sector employees, including the constables and legislators, do not have a normal retirement age but may retire at an early age starting at age fifty-five (55). Employees that receive pension in accordance with the Constables (Special) and Constabulary Force Acts can request retirement after the completion of thirty (30) years service. Soldiers and Jamaica Defence Force officers may retire after serving a minimum of twenty-eight (28) years or twenty-two (22) years respectively.

[5] IADB/OPM Public Sector Modernization Project, "Report on Public Sector Retirement/Pension Benefits & Leave Arrangements" by Coke & Associates, Consulting Actuaries, 1997

Other differences found across the various pieces of legislation are in respect of vesting provision, and termination benefits.

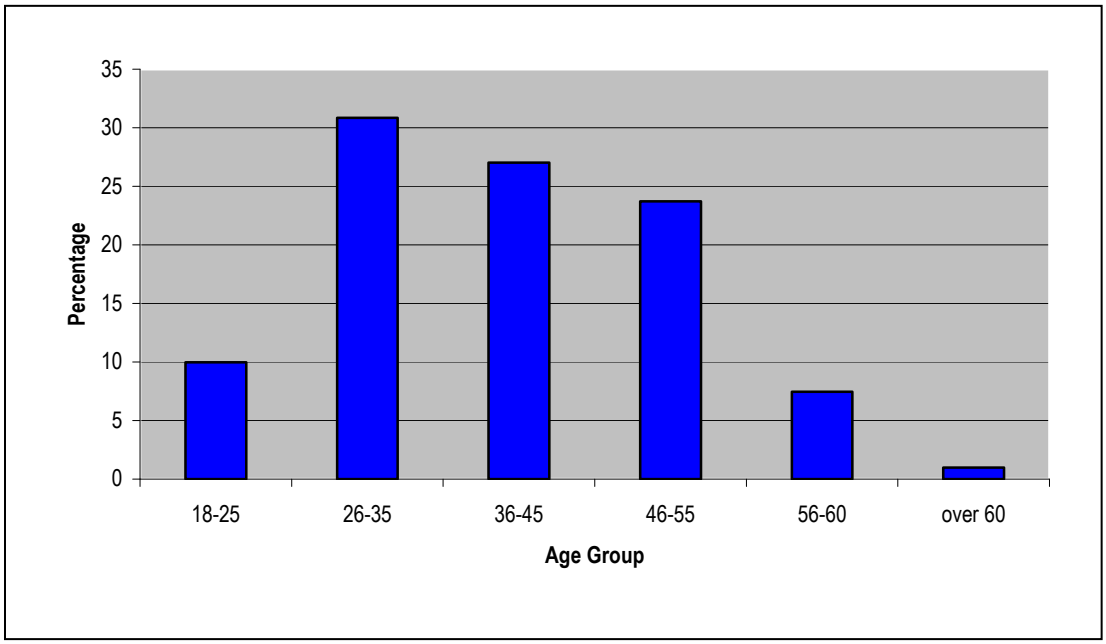
2.2 The Demographics of the Public Service

The Government was responsible for approximately 28,000 pensioners in 2010, and will be contractually obligated to pay the future pension of approximately 88,000 workers, if eligibility requirements are met and the size of the public sector remains the same.

2.2.1 *Age Profile of Public Sector Workers*

Figure 2.1 shows the age profile of public sector workers. The majority of the workers fall in the 26-45 age group, accounting for 58% of the population. Another fairly large group is the 46-55 age group which accounts for 24%. The remaining groups are relatively small; these are 18-25 (10%), 56-60 (7%) and over 60 (1%). These figures imply that a large number of public sector workers will be retiring within the next thirty (30) years and will be eligible for a pension, thus placing a heavier burden on the budget. It also shows a relatively large number of young workers in the service who have the potential of switching jobs. This combined with the plan to reduce the size of the public sector is likely to have implications on the choice of pension policy, as this can impact on the sustainability of an effective public sector.

Figure 2.1: Public Sector Age Distribution



2.2.2 *Public Sector Pensioners*

The Accountant General's Department which is the primary paying agency for public sector pension paid approximately 28, 000 pensioners in 2010. This reflected an average year to year increase of 4.7% over the period 2002 to 2010.

Figure 2.2 shows the age distribution of the public sector pensioners and beneficiaries as at 2009. It should be noted that over 50% of the pensioners are 70 years or older. Figure 2.3 shows the life expectancy at age 60 over the years. It should be noted that the most recent estimate of the life expectancy at age 60 in 2008 was 80.4. This implies that if the public servant retires on average at age 60, it is expected that the public servant will live at least 20 years longer. In addition to this the life expectancy of the population has been increasing and like the rest of the world the trend is expected to continue. It is a fair assumption that the life expectancy of the public servant is also expected to increase.

Figure 2.2: Age Distribution of Public Sector Pensioners/Beneficiaries

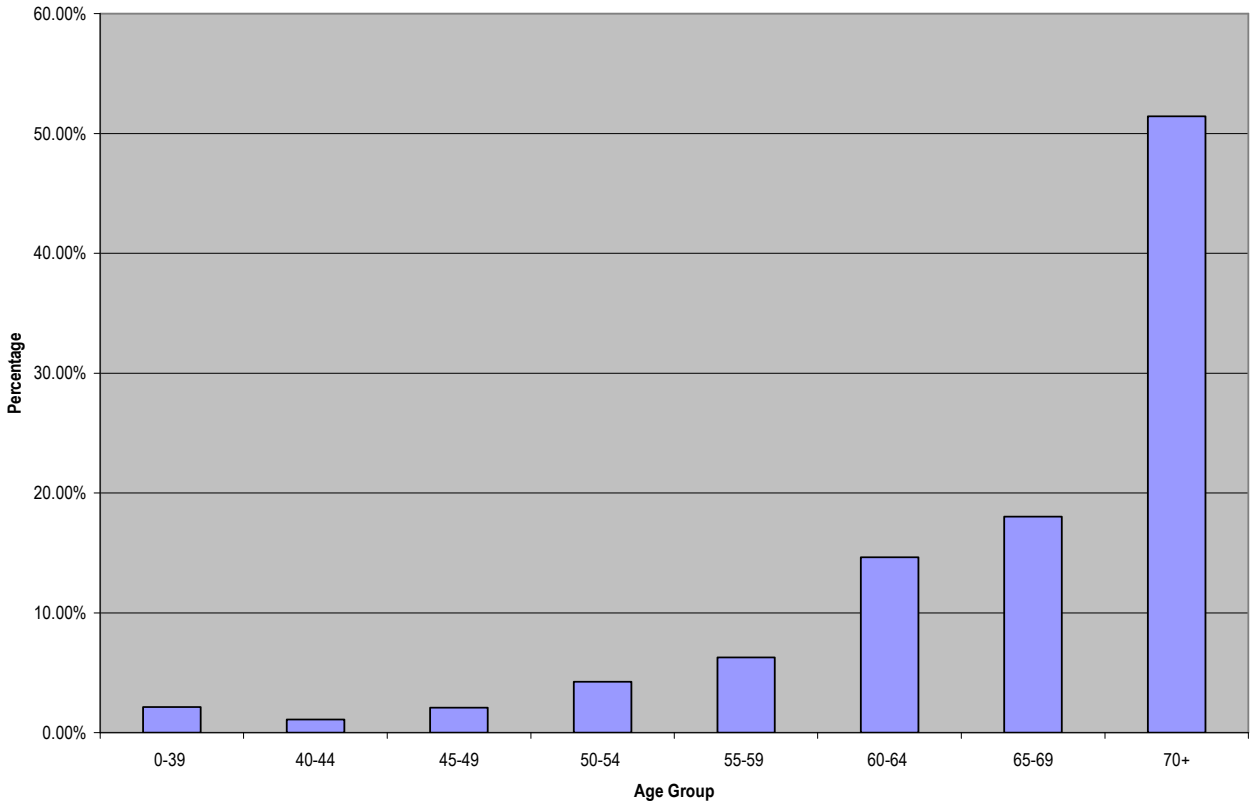
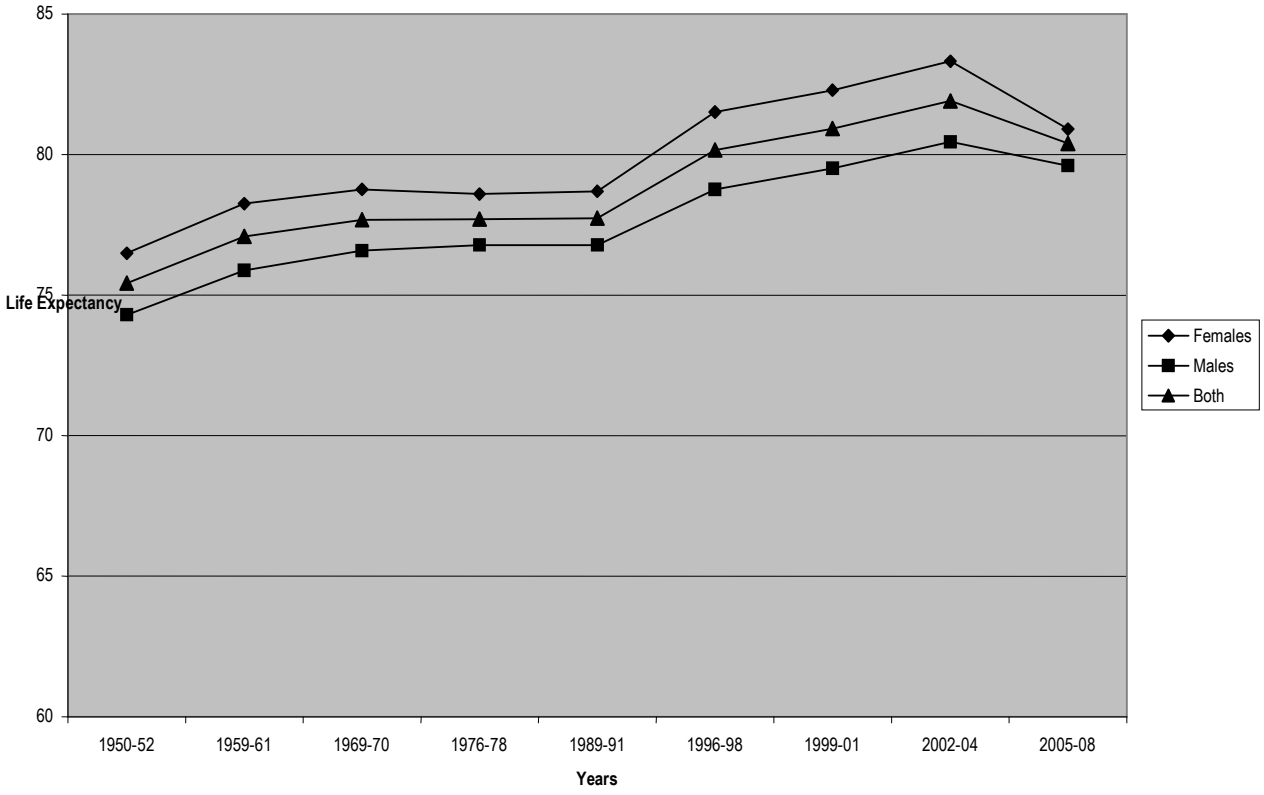


Figure 2.3 Life Expectancy at age 60



The public sector has evolved over the years with rules and practices for awarding pensions that were based on an old British based system. However, the changing demographics of the sector, the population, combined with the macroeconomic environment have made it necessary to examine the options available for reforming the public sector pensions. The next section explores the main macroeconomic indicators that are likely to impact the pension system.

THE JAMAICAN ECONOMIC ENVIRONMENT AND ITS IMPACT ON THE PENSION INDUSTRY

3.1 The Macroeconomic Environment

The Jamaican economy is small and open, traditionally relying on the production of agricultural produce and bauxite for export. Since the latter half of the twentieth century, the tourism sector has become a significant earner of foreign exchange. With the abolition of protective markets, it has become increasingly difficult for Jamaica to withstand the effects of exogenous shocks to which the economy is particularly susceptible.[6] The country is also vulnerable to adverse weather conditions, which often vary from prolonged droughts to flooding. This therefore means that unbudgeted expenditure is undertaken to prevent crises in critical areas of the economy.

Over the past three (3) decades, the impact of adverse weather conditions, changing global market conditions as well as high oil prices have reduced market share in the production of primary products. These factors combined with the cost of resolving the financial crisis of the mid 1990s have contributed to the prevailing adverse economic conditions. This is reflected in low or negative growth, a high fiscal deficit, high rates of inflation, and increases in the nation's public debt. Several exogenous shocks, a rising wage bill, the volatility of the exchange rate and an increasing public debt burden mean that there is need to address the issues that have led to these unsustainable macroeconomic conditions.

For the latter half of the 1990s, the inflation rate showed single digit levels up to 2002. However, as shown in Table 3.1, inflation rose to double digits each year except for 2006. Between the period 1998 and 2002, the economy experienced average growth rate of 0.6% and since then showed marginal or negative growth and by 2010 the growth rate was -1.2%, reflecting the impact of the global economic crisis and other shocks.

Table 3.1: JAMAICA: INFLATION RATE[7]
Calendar Years 2000 – 2010

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Inflation Rate (%)	6.1	8.5	7.2	13.8	13.7	12.6	5.7	16.8	16.8	10.2	11.7

[6] Nelson-Douglas, B. (2004). "*Inflation Targeting Framework for Jamaica: An Empirical Exploration,"* Research and Economic Programming Division, Bank of Jamaica
[7] The Bank of Jamaica, http://www.boj.org.jm

As the inflation rate increased, the wage bill of public sector workers with bargaining units got wage settlements that would lessen the impact of inflation on consumption. This, coupled with high levels of unbudgeted expenditure and inadequate revenue inflows, contributed to an increase in the fiscal deficit, resulting in increased demand for loans to finance the budget.

Table 3.2 shows that debt to GDP ratio in 2000 was 88.7% and by 2010 it is estimated to be 129.3%.

Table 3.2: JAMAICA: DEBT TO GDP RATIO[8]
Calendar Years 2000 - 2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total Public Debt / GDP %	88.7	117.4	122.2	123.8	122.9	119	117.8	110.9	109.9	123.3	129.3

In an attempt to put the economy on a sustainable path, the Government entered a structural adjustment programme with the support of the International Monetary Fund (IMF) in 2010. The successful implementation of the Medium Term Economic Programme should result in the public debt falling to 134% in 2011/2012[9]. It has also been projected that economic growth will be 1.5% in 2011/12. Inflation is expected to decrease to 6% in the medium term.

3.2 Effect of Macroeconomic Variables on Pension Funds

A critical element that must be considered when embarking on a public sector pension reform is the manner in which the performance of the economy affects the most at risk in the society. High rates of inflation affect the ability of the more vulnerable groups to purchase the most basic basket of goods. Pensioners fall within this group. With a fixed income and an inability to supplement it, the purchasing power of their income will fall as prices increase. In many countries the impact of the inflation rate on pension benefits is lessened by indexing the pensions to the inflation rate. Therefore, as inflation moves upward, so does the pension that is received. Indexing pensions to increases in the price level can however have negative effects.

[8] Ministry of Finance and the Public Service, Debt Management Unit, http://www.mof.gov.jm:8080/dmu/public/20100421_tpub_debt_calendaryr.pdf
[9] Ministry Paper No 9/2010, Jamaica's Request to the International Monetary Fund (IMF)

In periods of low or negative economic growth price levels may increase at a faster pace than wages and contributions, thus causing pension benefits to grow disproportionately. Any indexation policy will result in increased expenditure.

The productivity of the Jamaican economy is strongly affected by the prevailing double-digit unemployment rate. Low productivity and sub par GDP growth will negatively affect the revenue that is generated. A decrease in revenue will result in inadequate levels of financing for pension payments.

There are also implications for pension payments with the continuous increase in the wage bill, as the calculation of pensions is based on the employee's final salary. Any increase in wages will therefore lead to an increase in the pensions that are awarded. The accrued rights that pensioners have incurred pose a significant implicit debt to the Government.

3.3 **The Impact of Capital Market Development on Pension Investments**

The structure of the financial sector has been shaped significantly by the financial crisis of the mid 1990s. The country's capital market has a primary and secondary market for Government bonds, a very large repurchase money market, a relatively small market for short-term commercial paper, collective investment schemes and an equities market.

Over the years, the number of securities dealers has increased significantly, contributing to the expansion of the financial sector. This increase has led to further development of the financial market. This has created a wider market for Government bonds in a high fiscal deficit environment which has led to a base for the secondary market. There are risks associated with short term assets being used to finance long term investments, but there is a gradual shift to the realignment of the use of appropriate instruments to finance long term investments. Another potential problem with the capital markets in Jamaica is the lack of variety of the products that are available for investment. When there are limited options, it is harder for investors to diversify their portfolios. However, if investors were allowed to place a higher percentage of their portfolio in external securities this could prove detrimental to the country's reserves.

The investors of the local capital market were in January 2010 introduced to the Jamaica Debt Exchange (JDX). This programme was a debt management strategy that was implemented by the Government which facilitated the voluntary exchange of old bonds for new ones with lower interest rates, longer maturities but the same principal value. Therefore, investors were given lower interest rates and a longer time before they could access their funds. This affected pensioners as well as the National Insurance Fund (NIF) because a significant portion of pension funds are invested in Government paper.

When reforming any public sector pension system, it is important to consider the investment options that are available for the pension funds that will be under management. If the pension system were to be changed to a defined contribution scheme, then the instruments that are on the market for investment would have to be diversified. The funds under management would increase significantly creating greater demand for existing instruments. Under existing law, there are strict guidelines as to how much funds can be invested locally and abroad and this influence the returns on investment.

4. PROBLEMS OF THE CURRENT SYSTEM

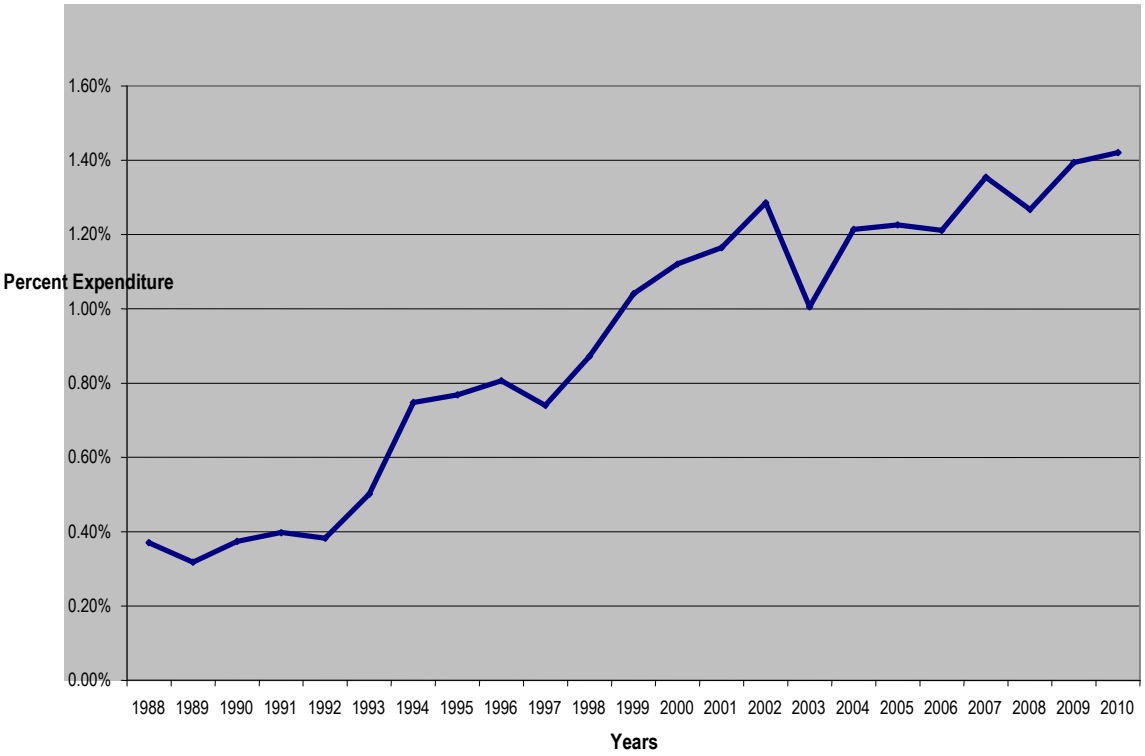
The existing public sector pension system presents many challenges. Despite some improvements, the administration of pension benefits could be greatly enhanced if the records were stored electronically and made accessible to allow easy calculation of pension benefits for each worker. In addition, pension expenditure would be projected more accurately. This section will deal with issues that relate to rising costs associated with pensions, the inadequate pension benefits in the face of a traditionally high inflation climate as well as limiting factors that hinder the linking of pension benefits for employees in different public sector groups.

4.1 Fiscal Sustainability of Pensions

The calculation of pension benefits for various groups of public sector workers is determined by a formula that uses the years of service and salary as its main variables. It therefore means that longer periods of employment and increases in salaries translate into greater benefits for the retirees. Likewise, the expenditure required for pension payments will increase as pensioners live for longer periods after retirement.

With the increased longevity of pensioners and growth in the number of public sector employees, the cost of public funding for pension payments has also increased. Figure 4.1 reflects the pension expenditure as a percentage of Gross Domestic Product over the years. It shows that the estimated expenditure as a percentage of GDP has increased from approximately 0.4% in 1990 to approximately 1.4% in 2010.

Figure 4.1[10]: Pension Expenditure as % of GDP

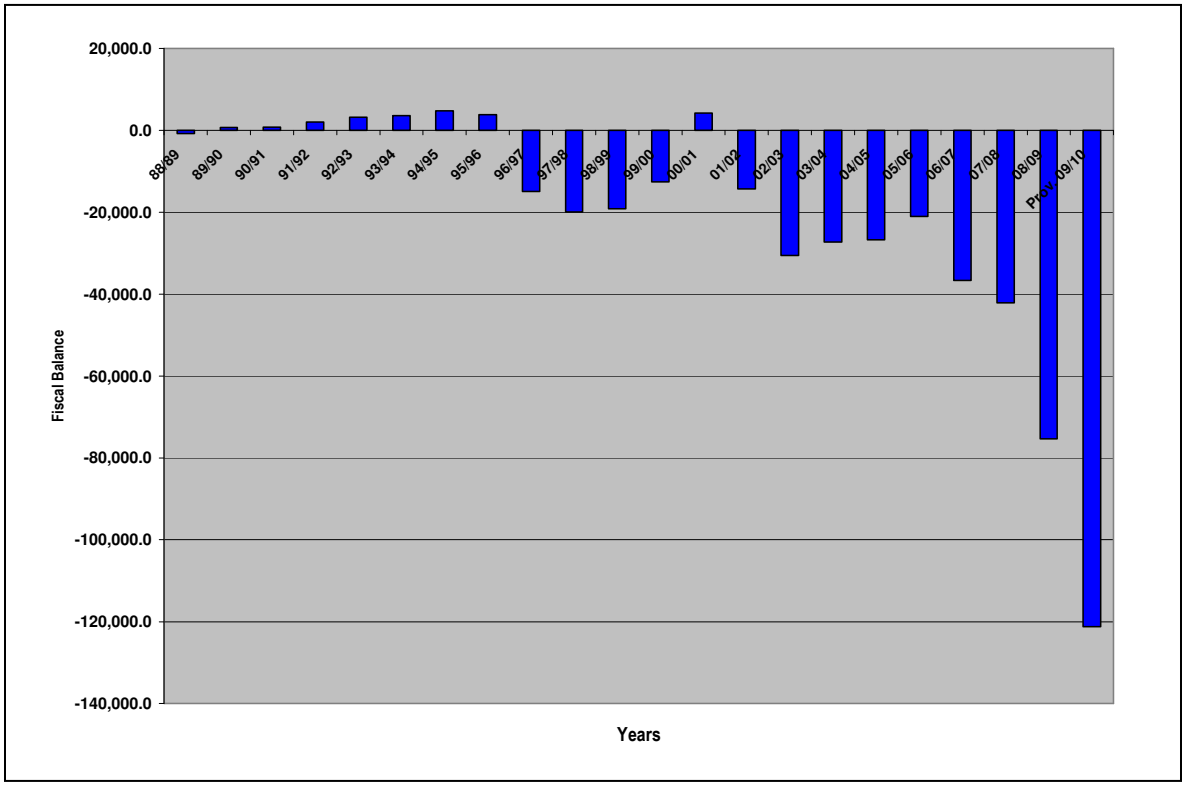


In an earlier section, it was shown that, 58% of the current workers are within the 26-45 age group, and would become eligible for a pension within the next 15-35 years, while approximately 24% would become eligible in ten (10) years. It is therefore expected that the estimated pension expenditure and fiscal burden on the taxpayers will continue to increase within the next 30–40 years as the public service matures.

Given that rising costs of pensions will place a significant burden on the taxpayers who contribute a major source of the revenue, it can be argued that it is unfair for all taxpayers to support a small segment of the wider population. In addition, limited resources will necessitate decisions about what percentage of these resources should be allocated to capital expenditure, infrastructure, debt servicing, wages, pension expenditure and other competing demands. The situation is even more critical as the fiscal balance has been in a deficit for the past nine (9) years and interest payments on debt have been increasing. Figure 4.2 shows the fiscal balance from 1988 to 2009.

[10]Estimate of Expenditure, Ministry of Finance and the Public Service

Figure 4.2[11]: Fiscal Balance (Surplus +/Deficit-)(in Millions)



Even when the plan to reduce the size of the public sector is realized, the cost of pensions may not necessarily decrease as much as expected because of the following:

- Life expectancy is projected to increase, therefore the Government will have to pay retirees a pension for a longer period;
- The Government will have to honour obligations to workers whose posts are abolished;
- The Government may have to make adjustments to pension payments to take into account inflation in order to ensure that pensioners maintain a reasonable standard of living.

[11] Fiscal Policy Monitoring Unit, Ministry of Finance and the Public Service

4.2 **Inadequacy of Benefits**

Although the Government increases the pension received by retired employees of the public sector, it is done on an ad hoc basis. At the end of 2009, the average pension received by a retired public servant was approximately $29,000 per month. In 2009, approximately 83% of retired public sector workers received $33,000 or less per month.[12]

In the same year, the maximum pension that was paid was over $400,000 per month. However, it should be noted that only 0.05% of retirees received over $250,000 per month for their pension. Given the rising cost of living, the increasing expenses that the public servant may incur after retirement, the average pension of $29,000 per month is woefully inadequate. Indeed, this amount is only $12,720 more than the minimum wage. The severity of the problem is emphasized when the data on pensioner is reviewed. For example, a pensioner who retired from the Jamaica Constabulary Force in 1989, after thirty seven (37) years of service was entitled to $2,433 at March 2011. This pensioner was however able to receive $15,000 based on the decision to pay a minimum of $15,000 per month. It should also be noted that the benefits paid by the NIS range from a low of $9,600 to a high of $46,800 per month. It is true that some expenses such as transportation costs may decrease after a person retires, but the increase in other expenses such as medical costs far outweigh any reductions in these costs.

4.3 **Complexity of the Pension System**

The existing Pension System is administered in accordance with various pieces of legislation. These laws contain provisions that are similar for the most part but there are differences that make it difficult to administer. Variations in the laws relate to normal retirement age, contributions and calculation of entitlement. This means that although the Government is the sole employer for all employees in the public sector, if an employee moves from one group to the next, the pension arrangement may be different. This makes the system unnecessarily cumbersome.

[12] The lowest pension paid was $400 per month. This amount seems to be in most cases for former employees whose post were abolished and started receiving pensions some time ago. It should be noted that unlike the ad hoc adjustments that have been made over the years to other categories of retirees, this minimum pension has not been increased over the years.

Some civil servants are required to contribute 4% of their salary in accordance with The Pensions (Civil Service Family Benefits) Act. The contributions are paid into the Consolidated Fund until age sixty fifty (65) years or for thirty five (35) years whichever is earlier.

A benefit is paid over to the wife, husband or child under 18 years on the death of the worker. Within the last decade, councillors are required to pay 4% of their salary under the Family Benefits Act. According to 1995 Coke and Associates Report, over a five-year period, 35% of the total employees' contributions was paid out in refunds and survivors pensions. Although the Government is the employer of all members of the pension system, the variations in the laws result in decisions being made on a case by case basis, in order to link the services of the employees from different groups. This also ensures that the administration of the system is consistent with the relevant law. In addition, if an employee transfers from one category to another, linking of the service can prove difficult, as there are inconsistencies in pension entitlements across groups. A good system should allow the employee to transfer accrued rights from one scheme to the next.

If a ministry or department is re-organized and a post occupied by the employee is abolished, then the employee is entitled to a pension. However, if this "pensioner" is re-employed in the civil service, in order for the service to be linked, the pension payments are terminated and the amounts are deducted from the final pension award. This makes the system unnecessarily complex and contributes to pension expenditure.

The preceding sections have examined the existing pension system within the existing macroeconomic framework and all its attendant problems. The subsequent sections seek to explore the issues that must be considered before embarking on a pension reform.

5. PRINCIPLES AND FACTORS TO CONSIDER IN ANY REFORM

It has been argued that the main driving force behind pension reforms in many countries is the need to reduce the heavy reliance on budgetary support for provision of pension benefits. As there is increasing demand for Government investment, expenditure on pension benefits for a selected segment of the working population is considered to be fiscally unsustainable. In evaluating any pension system for reform, the system must also be assessed to determine whether the benefits provided are adequate, affordable, predictable, equitable and robust.

According to the literature, conditions that improve the welfare of pensioners in a manner that is conducive to the current as well as the future environment of a country should be considered. Although all these principles are important, it is believed that most countries tend to pay more attention to the sustainability of the system rather than the adequacy of the benefits that are provided at retirement. Developing countries such as Jamaica need to find a middle ground between the pension benefits that should be allocated to the present pensioners and the funds that should be accumulated for future pensioners.

5.1 Adequacy

An adequate pension system is one that will offer pensioners benefits that are sufficient to aid in the prevention of old age poverty. Additionally, the consumption path of the pensioner should be smooth for the remainder of his/her lifetime. The pension benefits that are received should also act as an incentive to allow for staff retention. One of the main ways to determine if a system is adequate, is to examine the replacement rate. The replacement rate measures how much of a worker's income is being replaced by his/her pension. It is thought that progressive systems offer lower income earners a higher replacement rate than higher income earners.[13] However, this is all dependent on the benefit formula that is used to calculate the pensions.

With any pension reform, there should be the assurance that in spite of the economic activities undertaken, the pensioners should be able to avoid being a victim of poverty and if they should have the fortune of living beyond the average life span, they should not have to suffer. There are certain basic amenities that need to be maintained in old age, including access to housing, health care, and other basic services.

[13] Holzmann, Robert and Hinz, Richard. (2005). *Old-Age Income Support in the 21st Century: An International Perspective on Pension Systems Reforms*

5.2 **Affordability**

An affordable pension system is considered to be "one that is within the financing capacity of individuals and the society and does not unduly displace other social or economic imperatives of the country or have untenable fiscal consequences."[14] The key factors that can affect the affordability of a pension system will be examined in order to determine whether the society has the appropriate financial capacity. These include the rate of growth of the civil service pension, the income replacement rate and the transition costs involved.

The cost of civil service pension can become burdensome if the size of the service expands or if the wage bill grows at a higher rate than the economy wide wage bill. Another important factor to consider is the income replacement rate, which refers to the level of benefits that is replaced by pre-retirement income. The higher the income replacement rate, the higher will be the cost of civil service pension.

The transition costs associated with reforming the pension system is also important. Converting from PAYG to funded DC pension schemes will incur high transition costs. Transition cost arises because a gap develops between revenues and contributions when some of the contribution is diverted to a newly funded system while the promised benefits continue to be paid to current retirees and older workers under the old PAYG system.

Finally, it is important that the Government consider whether to limit the reform to new entrants or to include current contributors. It has been shown that buying-out the accrued rights of existing civil servants or inducing them to switch to a new scheme can become more expensive than leaving them under existing arrangements and closing the scheme to new entrants.

5.3 **Sustainability**

A sustainable system means that the system is financially sound and can be maintained over the long term when certain assumptions are kept in mind. If a system is unsustainable, it can have two (2) major consequences. Firstly, transfers that are made from the budget towards pension payments can be one of the main causes of a country's increasing budgetary deficit. This may lead to a negative effect on the prevailing macroeconomic conditions as well as a worsening of the crisis that is being experienced. The second consequence stems from the first. If there are high transfers from the budget to supplement pensions, then measures will need to be put in place to offset the negative effects on the overall budget. This would either be done through the introduction of new taxes or increases in existing ones. Another option would be to reduce expenditures.

[14] Dorfman, M., Hinz, R. and Holzmann, R. (2008). Pension Systems and Reform Conceptual Framework.

The structure of the pension system should be such that, if there are adverse financial conditions in the economy, this should not cause: (i) any changes in the contribution rate, (ii) reduction in the benefits received or (iii) money to be reallocated from pension payments to the critical areas. This means that all factors that can affect the pension system's sustainability should be considered from the outset and incorporated in the design of the system. Consequently, adjustment mechanisms should be put in place that will offset any shocks that will have ill effects on the system.

5.4 **Predictability and Equitability**

For a pension system to be seen as providing predictable benefits three (3) conditions need to be satisfied[15]:

- The formula used to calculate the pension benefits should be clearly stipulated in law;

- If the scheme is defined benefit, then the formula should be designed in a manner that provides for changes in the inflation rate. If it is a defined contribution scheme, then the investment policy should protect the beneficiary from any asset price adjustments prior to retirement; and

- During retirement the benefit provided should be indexed to shield the worker from the effects of price adjustment.

Equitability of pension benefits means income is redistributed from the lifetime rich to the lifetime poor in a way that is consistent with societal preference and should not be a burden to the rest of society who are not a part of the system.

5.5 **Robustness**

Before a pension system is put in place, there should be forethought of likely stress and instability that can affect it. A robust pension system is one that is capable of withstanding any major shocks. It should also continue to be effective in the face of unforeseen conditions. This condition is judged on the ability of the system to maintain the expected "income-replacement targets" over the long run. The main shocks that can affect any pension system are political, economic and demographic changes.

[15] Holzmann, Robert, Hinz, Richard and Dorfman, Mark. (2008). *Pension Systems and Reform Conceptual Framework*

A critical factor in ensuring that robustness exists is to carefully analyze the costs of the reform based on various scenarios, subject to as many constraints as possible. This should be done over the long-term so that the reform is able to reach maturity and is stable. In order to achieve this goal, most countries employ various modeling techniques subject to peculiar constraints to determine whether or not the system will be able to withstand shocks post reform.

5.6 **Conclusion**

In concluding, these six (6) concepts cannot be thought of as being independent, as the effect that each has on the other must be examined. From an affordability perspective, both the employee and the employer may see a contribution rate that meets this criteria but this may lead to inadequate benefits or a system that is financially unsustainable. Furthermore, these concepts are not stand-alone principles; they can be affected by policy decisions that may be chosen for implementation at any time.

6. OPTIONS FOR REFORM AND THE IMPACT OF DIFFERENT TYPES OF REFORMS

There are several issues that must be considered before choosing an option for pension reform. In the previous section, the main principles that ought to be contemplated before an option is chosen were discussed. However, the choice should be dependent on the objective of the reform programme. Based on this objective, the PROST model was used to carry out simulations to determine the most suitable option for Jamaica's economic and social conditions. A brief description of the three (3) main pension systems, along with their advantages and disadvantages, are presented in the following paragraphs.

6.1 Defined Benefit (DB) Scheme

This arrangement is the traditional pay-as-you-go (PAYG) defined benefit pension scheme. In the defined benefit arrangements pension payments (benefits) are based on a pre-determined formula or set of rules. The employee and the employer may contribute in this arrangement and the funds may or may not be invested. As the workers contribute to the scheme, they are promised future pensions, so that the system accumulates liabilities but there are no funds accumulated to pay the debt. Therefore, the fund has hidden liabilities[16]. In the defined benefit arrangement, the current contributors fund the current pensioners. If there are contributions made, a person's pension is not related to this contribution.

The advantages of the pay-as you-go arrangement are that it is predictable (especially for those near to retirement), easy to understand, administratively manageable and shields employees from risk.

Disadvantages of the defined benefit arrangement are that the manner in which transfers are made is not transparent, especially between generations. Benefits accrue independently of fiscal resources and can create high levels of hidden debt, when outflows are greater than inflows. If this scheme is not funded, the resources that were initially put aside for pensioners can be reallocated to other areas as policymakers see fit. In addition, in order to maintain fiscal balance, this arrangement ought to be tweaked periodically.[17]

[16] Bogomolova T, *Pension Economics, Basic Concepts and Identity"* World Bank, 2009
[17] Bender C *"Design of Pension Schemes for Public Sector Employees: A Workshop for the Government of Jamaica"* 2009

6.1.2 **Defined Contribution (DC) Scheme**

In Defined Contribution schemes, participants (both employee and employer) contribute to a pension fund. These contributions are then invested. If the real rate of return on investment over the long term is not generous, pension benefits are likely to be inadequate. The advantages of the DC scheme are that there is greater transparency, no immediate implicit debt and it minimizes the hidden redistributive transfers.

However, the disadvantages are that the benefits are unpredictable, as they are subject to market conditions. This exposes the individual to investment risks. It is complex to administer and transition cost for implementation is likely to be high. The level of funding will be significant, as financing will be required for employees in the DB schemes and resources will have to be allocated to contributions on behalf of those employees in the DC scheme.

6.1.3 **Notional Defined Contribution (NDC) Scheme**

In the NDC scheme, like the DC arrangements, benefits are determined by contributions and some investment returns. However, the return that the contribution earns is set by the policy makers and is not determined by the market. It should be noted that in most cases the rate of return is usually determined using a macroeconomic proxy such as wage growth. Participants make contributions, but unlike the defined contribution fund where there is a segregated fund, contributions are recorded as balances on individuals' accounts, but there are no actual assets. The account balances at retirement are used to determine benefits based on birth year life expectancy. In summary, the notional defined contribution schemes are PAYG financed, but pension benefits are calculated using a defined contribution formula.

Some of the advantages of notional schemes are that they are more transparent, there is a closer linkage between benefit promises and Government's fiscal capacity, they facilitate the eventual introduction of funding, minimize hidden redistributive cost, and there is no transition cost in the case of a reform from defined benefit scheme.

Although the disadvantages of notional schemes identified in the literature are not as many as defined benefit schemes, they are vulnerable to demographic changes, more complex to administer than defined benefit though easier to administer than defined contribution schemes. In addition, a mechanism is necessary to determine changes in the economic proxy and adjustments in birth year life expectancies. Also of critical importance are reliable information technology systems and reliable data management system to properly administer this type of scheme which could prove costly. It is also difficult to explain to stakeholders.

6.2 Types of Reform

While there are three (3) main types of pension arrangements, pension design is not limited and there can be hybrid arrangements of pension schemes. These are arrangements and not types of reforms. The types of pension reform that countries can embark on include the following:

- Parametric reforms involve changing the terms in the existing pension system. Most countries that have embarked on pension reforms have undergone parametric reforms. During the period 1995-2005, 18 countries increased the retirement age, 57 increased the contribution rate and 25 modified the benefit formula.[18] For example, in France the Government recently passed the proposal to increase the minimum retirement age from 60 to 62 and full state pension age from 65 to 67.

- Systemic reform is used to describe a change from one pension arrangement to another. For example, changing from a defined contribution scheme to notional defined contribution scheme. In most cases where there is systemic reform, there is usually a mixed system. In 1981, Chile introduced a second pillar by replacing the PAYG system with a defined contribution system. In Sweden, after parliament agreed to the principles of the new pension plan, legislation was passed in 1998 to reform the national pension scheme to a notional defined contribution benefit pension scheme from a PAYG system.

- Diversification of the system which would include the introduction of new pillars. Jamaica technically has only two (2) pillars: the first pillar being the National Insurance Scheme and the second pillar, the occupational schemes.

- Administrative reforms which include unifying multiple systems within a country, improving compliance and efficiency of benefit distribution.

- Regulatory reforms include improving the legislative structure to govern the operation of the pension industry, in order to ensure that systems are properly run and contributors' funds are invested and managed properly. Jamaica introduced legislative changes in 2004 to regulate private pension funds.

Most countries that have undergone or are in the process of reforming the pension industry focus on the national scheme. Countries have taken a more holistic approach to pension reforms by looking at the national pension arrangements, occupational arrangements and private savings. However, there are countries that have undertaken

[18] Robalino D. "*Reform Option I, Parametric Changes*", World Bank Core Course on Pension, November 2009

reforms or are in the process of reforming the civil service pension scheme.[19] In Finland and Sweden, recent reforms to the civil service pension included increasing the retirement age. In some countries including Sweden and Italy, there have been increases in the contribution rate. In some Scandinavian countries and Italy, there have been introduction of some form of pre-funding.

6.3 **Methodology of PROST**

In order to run simulations on the different reform options, a pension projection model was used. The model, known as the Pension Reform Option Simulation Toolkit (PROST), was developed by the World Bank and has been used in over ninety (90) countries to aid in discussions for amending pension policies. PROST was created to assist in answering the following questions[20]:

- How much will the pension system cost in the future?
- Is it viable and sustainable?
- What kind of benefits can people expect to receive in the future?
- Is the system equitable and providing adequate benefits to individuals?
- How high are the Government's implicit pension liabilities?
- How will these change under various reform options?

The flexibility of PROST allows it to adapt easily to any country's social and economic conditions and allows for simulations to be carried out based on various scenarios. It utilizes data that is specific to the country in which the reform is being undertaken. These include employee and pensioner data, demographic information as well as macroeconomic variables. The input data is then used to predict the revenues and expenditure of the pension system as well as the pensioners' entitlements over the long run.

PROST has been used to model all three (3) reform options (parametric, Defined Contribution and Notional Defined Contribution) as well as the current situation, so proper evaluations and comparisons can be made to allow for informed recommendations. Although PROST generates numerous graphs and tables, the main focus will be on three (3) important variables. These are the Average Replacement Rates, the Cost to the Government as a percentage of GDP and the Implicit Pension Debt[21] as a percentage of GDP. The analysis of the trends in these variables will

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[19] Palacios and Whitehouse *"Civil Service Pension Around the World"* 2006

[20] World Bank. (n.d).*"Modeling Pension Reform: The World Bank's Pension Reform Options Simulation Toolkit."*

[21] Implicit Pension Debt - The value of outstanding pension claims on a pension system

facilitate the determination of which reform option will be best for all stakeholders as they measure the adequacy, sustainability and affordability of each system.

6.3.1 **Constraints of PROST**

PROST is highly dependent on the input data and the assumptions that are used in the model. Therefore, if the data is of poor quality or impractical assumptions are made, then the resulting projections may be misleading. Furthermore, for accurate and representative projections, PROST is reliant on a large variety and volume of data. In running the simulations the data quality and quantity was of concern.

A significant portion of the data collected had to be discarded, due to incomplete or incorrect information. This resulted in a smaller sample size than originally expected; however, the data was sufficient and representative to carry out the simulations.

Another constraint of the model is its inability to accurately depict the complex pension system that exists for public sector workers. It was therefore impossible for this to be accurately represented in the model. As a result, the different rules that apply to special groups in the public sector were ignored and the rules that govern the majority of the population were modeled. This however did not greatly affect the results.

Finally, PROST utilizes input files that are created by personnel at the World Bank and the local technical team was not involved. The fact that these projections are done for the long run means that these constraints will have little effect on the trends that are forecasted.

6.3.2 **Simulations**

Data for over 66,000 members of the public sector population were collected from Ministries, Departments and Agencies, while pensioners' information was obtained from the Accountant General's Department. These were submitted to the World Bank to be incorporated in the input files. The World Bank then used macroeconomic data from IMF projections and other statistical publications. The World Bank used these input files to carry out simulations in consultation with local team.

6.3.3 **Assumptions of Simulation**

Several reform scenarios were modeled using PROST. Five (5) of these options will be presented in this section and the others can be seen in Appendix I.

Reform Scenarios

Simulations were done over a 66-year period, as it is assumed that projections should span over a generation. Therefore, the projections were run from 2009 to 2075. The reform is expected to take place in 2015. All revenues are anticipated to remain unchanged and the macroeconomic variables are based on projections associated with the prevailing conditions. Assumptions on the macroeconomic conditions are presented at Appendix 2.

Reform Scenarios	Contribution rate (employer + employee)	Accrual rate	Interest Rate	Applies to
Parametric Reform 1	10%+10%	2.2%		Everyone
Parametric Reform 2	5% + 5%	1.8%		Gradually from 2.2% in 2015 to 1.8% in 2025. 50years of age and older are exempted and receive 2.2%
Funded Defined Contribution 1	10%+10%		3% real	40 years of age and younger
Funded Defined Contribution 2	5% + 5%		3% real	40 years of age and younger
Notional Defined Contribution	5% + 5%		wage growth	40 years of age and younger

In all the reform scenarios:

- Pension benefits will be indexed to both inflation and nominal wages at 50% each.
- Wages are assumed to increase above inflation after 2012.
- Retirement age will be changed from 60 to 65 by one year every two years. (Only workers 40 years and younger will be affected and this will start having an effect in 2030 and reaching age 65 by 2040.)

In the parametric reforms:

- Salary used to calculate pension benefits will be changed from final salary to an average of the final five (5) years' salary earned starting in 2015.
- The formula will gradually change by adding one additional year to the average each year until it reaches a career average in 2040.
- In parametric reform 1, a combined contribution rate of 20% will be introduced (i.e. 10% from employees and 10% from the Government).

- Parametric reform 2 has a combined contribution rate of 10% (i.e. 5% from employees and 5% from the Government). There is also a reduction in the accrual rate from 2.2% to 1.8%. This is done over a 10-year period and this will only affect workers below age 50.

The structural reform options:

- Funded Defined Contribution (DC) and Notional Defined Contribution (NDC), apply only to persons who are 40 years and younger.
- Workers older than 40 years will enter into a reformed PAYG system similar to that modeled in parametric reform 1 where they will pay contributions, have benefits indexed according to wages and inflation (50%) and retirement age will increase from 60 to 65 between 2030 and 2040.
- In the DC scenarios, a real rate of return of 3% was assumed.
- In the NDC scenario, the notional interest rate was assumed to grow in line with real wages as this is expected to be sustainable in the long run.
- Two (2) DC options were modeled, one (1) with a combined contribution of 10% and another 20%.
- The NDC reform modeled had a combined contribution rate of 10%.

6.3.4 **Results of Simulation**

Adequacy

Figure 6.1: Average Replacement Rates for New Retirees (Parametric Reform)

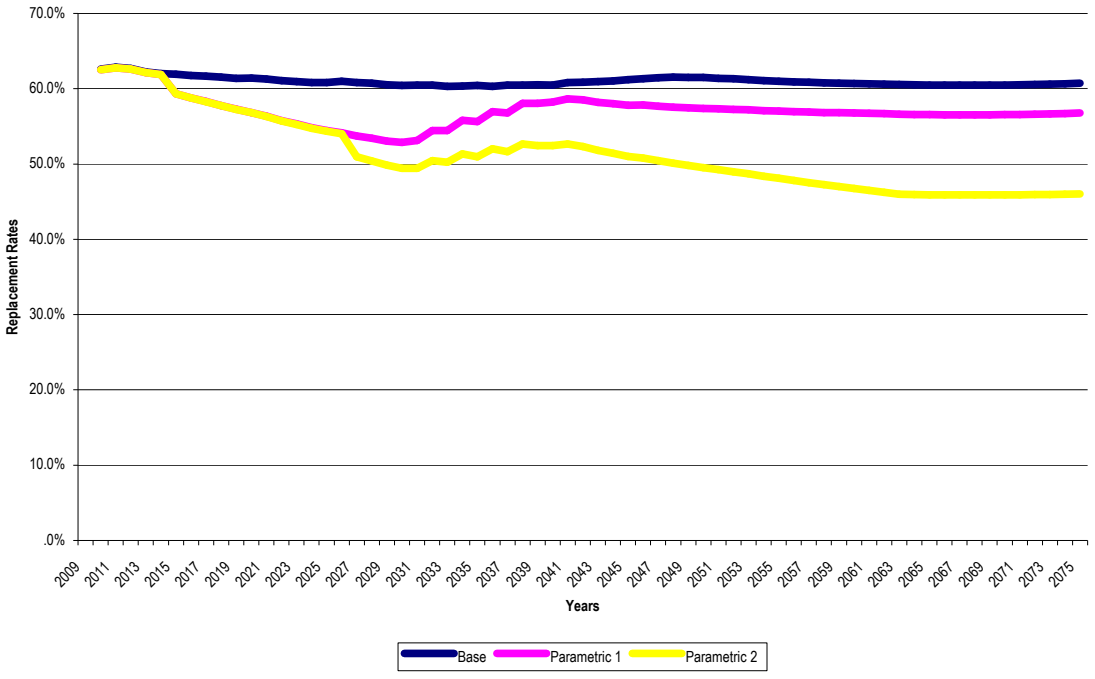
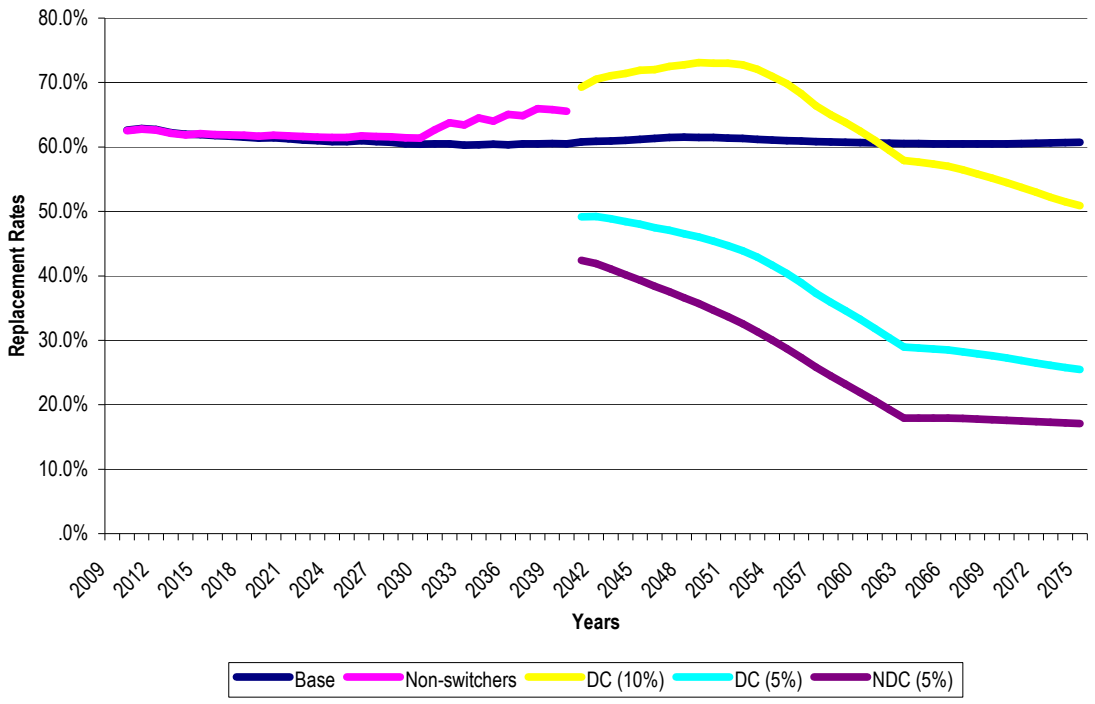


Figure 6.1 illustrates the projected Average Replacement Rates[22] for the two parametric reforms simulated as well as the existing system. As mentioned earlier, the replacement rates reflect the adequacy of the pension benefit. The diagram shows that the current pension system provides benefits with replacement rates of approximately 60% and this trend continues over the long run. In parametric reform 1, the replacement rates initially fall but increases in the long term. This movement reflects the gradual shift from using final salary in pension benefit calculation to career average tapering off at approximately 56% just short of the base scenario. Parametric Reform 2, however, showed a more drastic fall in the replacement rates of new retirees as a result of the combination of reducing the accrual rate on top of extending the average period for the base salary calculation. The replacement rates fell below 50% before increasing for a short period and finally settling at 46% in 2075.

Figure 6.2: Average Replacement Rates for New Retirees (Structural Reform)



The replacement rates for structural reforms along with the base case are shown in figure 6.2. The benefit levels in structural reforms depend on two factors, the rate of

[22] Average Replacement rate – the average value of an individual's pension as a proportion of his wage

return obtained as well as the total contributions credited to the individual accounts. A real interest rate of 3% was assumed for the DC scenarios which is higher than the real increase in wages that is assumed as the notional interest rate in the NDC.[23] Therefore, the benefits obtained in the DC scheme will always be higher than that of the NDC based on the assumptions. It should also be noted that the macroeconomic conditions would have to be consistently exceptional in order to achieve a real rate of return of 3% over the long run.

When compared with the base scenario, the DC 1 scenario will provide higher replacement rates for the new retirees peaking at over 70% in the short run but will decline to approximately 50%. When comparing the NDC and DC options with a combined contribution rate of 10%, lower replacement rates were projected. The DC scheme started slightly below 50% and eventually tapered off at 25% while the NDC decline from 42% to 17% in the long run. Therefore, in order to receive an adequate benefit in a DC scheme the contribution rate and real rate of return would need to be relatively high.

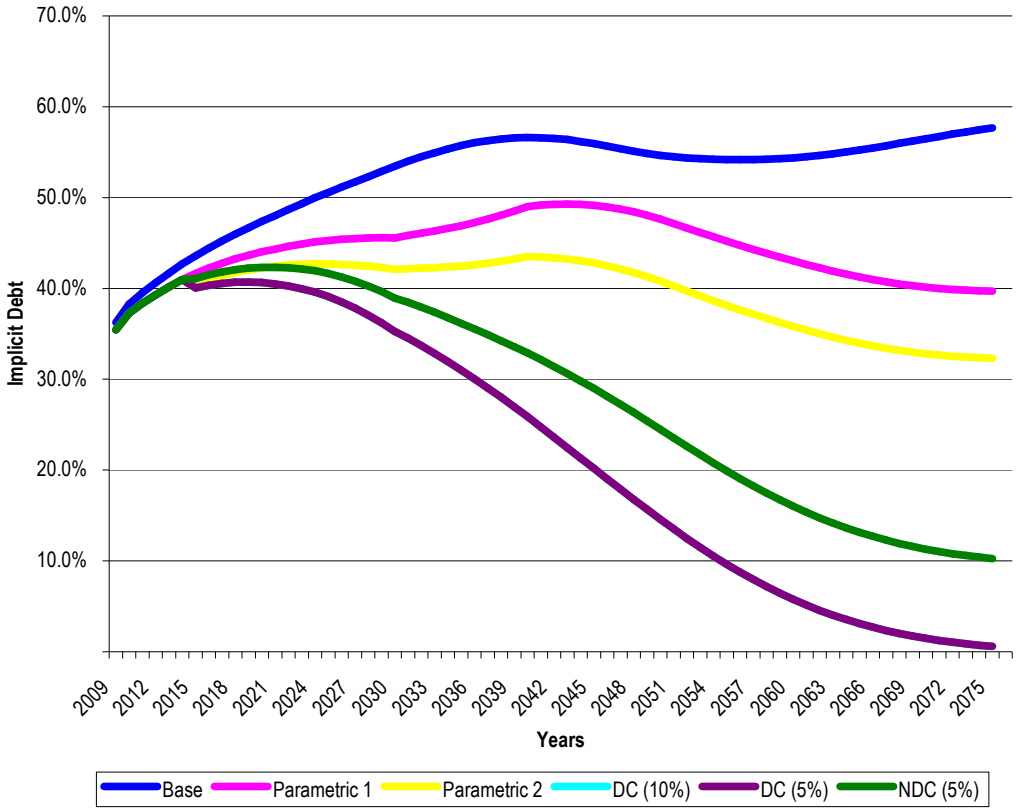
Sustainability

Figure 6.3 shows the Implicit Pension Debt as a percentage of GDP. This represents the pension payments that are due to current as well as future pensioners. Presently, this is roughly 36% and is expected to increase to over 57% by 2075. In both parametric reforms the IPD does not grow beyond 50% of GDP but parametric reform 2 shows a greater reduction due to the fall in accrual rate. In this scenario IPD levels in the long run fall to 33% of GDP.

With structural reforms the implicit debt incurred by the Government in the existing defined benefit system is completely eliminated. However, in the case of the DC reform this will take time as older workers have accrued rights and current pensioners have benefits that must be honoured under the old system. Regardless of the contribution rate imposed in the DC scenarios the implicit pension debt will be eliminated in the long run as both graphs showed identical patterns. In the NDC system, the Government will still incur IPD but it will be a huge reduction from what was seen in the base case as in the long run the debt falls to 10% of GDP.

[23] Real wages are assumed to grow 1%-2% between 2015 and 2070.

Figure 6.3: Total Implicit Debt as a Percentage of GDP



Cost to the Government

Figure 6.4 shows the cost of the public sector pension system to the Government. Based on projections, if the current system remains, pension expenditure will increase from 1.1% of GDP to 3.2% by 2047. All scenarios modeled saw a fall in the costs that the Government will incur. In the parametric reforms, the impact on costs will be heavily dependent on the contribution rates that are imposed as this acts as a new source of revenue for the system. In both parametric reforms the cost to the Government peaked at 2.2% before falling to 1.5% of GDP in the long run.

The main difference in the cost to the Government incurred in both types of structural reforms is in the effect that contributions have on pension finances. In the case of a DC reform, the payment of contributions by workers has no effect on the Government's revenue or expenditure as it goes into an individual account. The Government's

contribution however will have a negative impact on revenues, as costs will increase. This is as a result of the Government in its role as employer having to make contributions as well as serving as a pension provider to those who remain in the old system. With the NDC system however, Government contributions have no impact as they are both a form of cost and revenue therefore it has an offsetting effect. Employee contributions are a source of revenue and reduce the net cost of pension provision to the Government.

Figure 6.4: Cost to the Government as a Percentage of GDP (Contribution and Deficit)

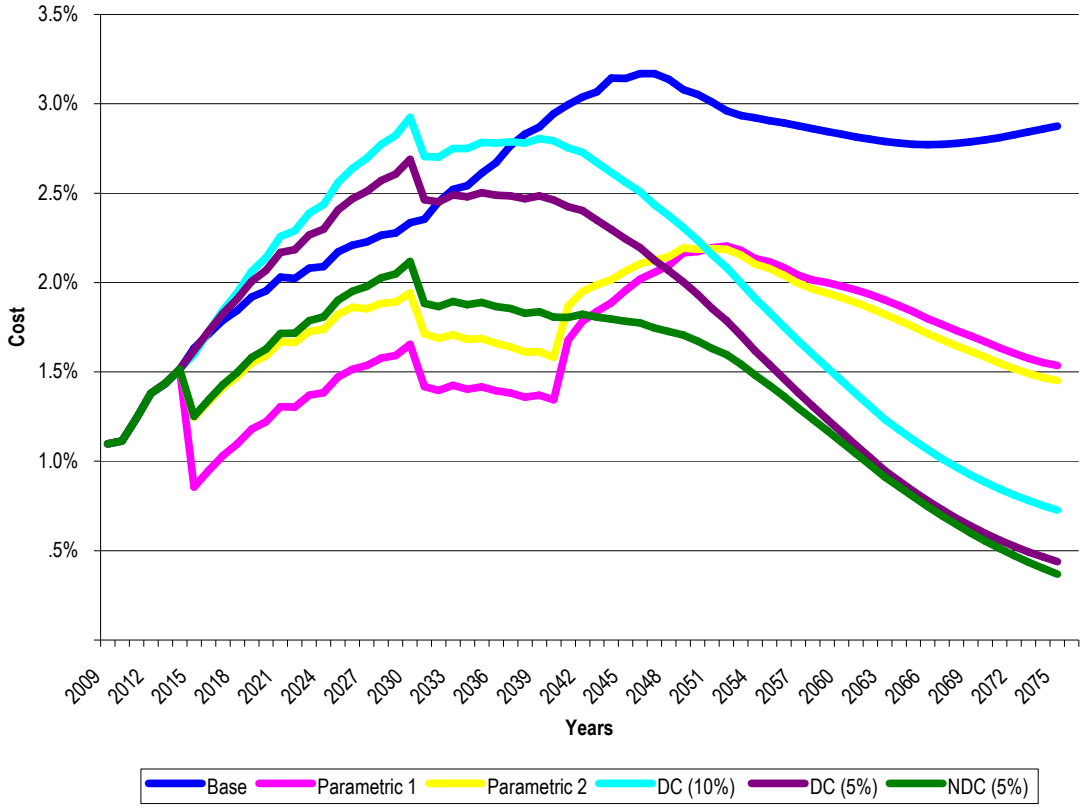


Figure 6.4 shows that in the 20% variant of the DC scheme the costs to the Government peaks at 2.9% of GDP in 2030 but in the long run the costs will decrease to 0.7%. This occurs as the older workers transition out of the old system and the cost the Government incurs are only associated with the contributions being made. With the introduction of an NDC system costs will fall immediately before rising in the medium term and eventually decrease to 0.4% in 2075.

Implications

Having compared the results of the scenarios it is important to examine each option within the context of the principles discussed in Section 5.

Option 1 – Parametric Reform 1

Structurally, this system is similar to the existing system and would be fairly easy to introduce. It is also fairly predictable and transparent since participants know the formula used to calculate pension benefits and therefore know what to expect at retirement. It provides adequate benefits for the pensioner, but the contribution rate of 10% could prove unaffordable especially for the workers that are in the lower income bracket. In terms of sustainability of the system, the pension debt decreases under this reform falling from 57.7% to 39.7%. This new option would also be more affordable for the Government when compared with the existing system as cost fall from 2.9% of GDP to 1.5% in the long run.

Option 2 – Parametric Reform 2

Parametric reform 2 has similar advantages to Option 1 with the added benefit of a reduced contribution rate of 5%. This rate would be more affordable for the average worker than the 10% proposed above. It is also a 1% increase over the 4% contribution that is currently being made by civil servants towards family benefits and 1% less than those who are currently contributing 6% towards their pension. However, groups such as nurses, teachers and police would now be asked to contribute 5% of salary. Currently, nurses and teachers make no contribution to the Consolidated Fund, while police contribute 1.6% of salary. Although replacement rates would be slightly lower than Option 1 it can still be considered adequate. This system would be more sustainable than the existing system and Option 1, as the implicit pension debt decreases from 57.7% of GDP to 32.3%. Due to the lower contribution rate, the costs associated with this reform although initially exceeding that of the previous reform, in the long run it becomes more affordable due to the lower accrual rate, falling from 2.9% of GDP to 1.5%.

Option 3 – Funded Defined Contribution

Defined Contribution reform 1 initially provides high replacement rates of over 70% in the medium term, but similar to Option 1 it may be unaffordable for workers due to the high contribution rate. A funded scheme would be clearly transparent as benefits are directly related to the contributions made. This scheme would be sustainable in the long run as all implicit pension debt incurred in the existing system would be eliminated. However, in the medium term this system would prove very costly and unaffordable for the Government as the pension payments in the old system and contributions to the

new system will be made at the same time. As mentioned earlier, the benefits received are dependent on rate of return on investment and the assumption of a 3% return is overly optimistic.[24] This feature also makes the system unpredictable. Government will also have to decide who will manage and administer the new fund which will pose an additional cost. Moreover, with the implementation of a funded system, legal advice indicates that the Constitution will need to be amended.

Option 4 –Funded Defined Contribution

The tradeoff for having lower contribution rates in a DC scheme, as seen in Defined Contribution reform 2, is the provision of extremely inadequate benefits of 25% in the long run. In terms of sustainability, as was the case in Option 3 the implicit pension debt will be eliminated in the long run. This scheme would also be costly in the medium term exceeding the spending of the existing system, before eventually declining in the long term.

Option 5 – Notional Defined Contribution

The Notional Defined Contribution reform modeled provided the most inadequate pension benefits of all the options with replacement rates of 17% in the long run. However in the long run this system was both sustainable and affordable for the Government as the implicit debt and the cost to the Government both declined substantially to 10.3% and 0.4% respectively. Similar to the DC schemes the NDCs are transparent as the pension benefits are linked to the contributions made but they are difficult to explain due to the complexity of the system. Moreover, they are easy to manipulate through the interest rate.

[24] Reyes, G. (2011). "*Civil Service Pension Reform in Jamaica*," Policy Note, World Bank, Washington D.C.

7. RECOMMENDATIONS

Based on the above simulations the option that would best serve the function of ensuring that the system is sustainable and affordable for the Government while also providing adequate benefits would be Option 2: Parametric Reform 2. In addition to changing the scheme such that pension expenditure as a percentage of GDP is reduced, the following are recommendations that will contribute to a reduction in the costs associated with pensions:

1. Implement the re-engineered business process which is being developed to ensure a more efficient administration of pensions to participants in the existing system.

2. Establish a new computerized database, in order to facilitate electronic processing, track career history of employees and allow more accurate estimates of pension expenditure.

3. Establish a Division/Commission staffed with personnel with the requisite skills to calculate pension liabilities and advise Government on options for further pension reform as necessary. The factors that impact pensions are dynamic and close attention need to be paid to them and implications for fiscal accounts.

4. As far as possible, implement recommendations of the legal analysis, so that public sector workers that are in the same scheme can easily link the years of service. Currently, the legislation for each group are similar, therefore one piece of legislation with pensions for specific groups will make the system less complex and more efficient.

5. Separate the issue of making posts redundant from pensions. Pensions should only be associated with retirement, not the abolition of posts or retrenchment.

6. Conduct an extensive financial education programme so that public sector workers become aware of the importance of saving for retirement.

7. The NIS, which is a first tier contributory national PAYG system, must be reformed to properly supplement the pension benefits received, in light of its low replacement rate. It is recommended that the basic Social Security System (NIS) should be enhanced through the development of improved funding arrangements and more efficient administrative procedures. This will facilitate the provision of more meaningful benefits on a national scale.

8. The Pensions (Civil Service Family Benefits) Act should only be applicable to workers who are in the old scheme.

9. Indexation of pensions should be standardized to avoid ad hoc increases, allow transparency and better predictions.

8. GLOSSARY

Accrued Rights: This is the accumulated benefit of a member of a pension plan based on the years of service and current salary.

Contribution: A payment made by the employee and/or employer to a pension plan through salary deduction for the purpose of accumulated capital or accruing benefits.

Contribution Rate: The amount (typically expressed as a percentage of the contribution base) that is needed to be paid into the pension fund.

Defined Benefit Pension Scheme: A pension plan where guarantee is given by the employer that an individual will receive benefits. Benefits are based on a prescribed formula (including salary, length of service and other factors) and are not linked to the contributions made.

Defined Contribution Pension Scheme: A pension plan where contributions are made and benefits are based on the contributions plus the returns on investment.

Indexation: A method of adjusting pension benefits to take into account changes in the cost of living (e.g. prices and/or wages).

Implicit Pension Debt: The value of outstanding pension claims on a pension system.

Notional Defined Contribution Pension Scheme: This system resembles a defined contribution plan, where the pension depends on contributions and investment returns. However, in notional accounts, the return that contributions earn is set by policy, not the product of investment returns in the markets.

Occupational Schemes: This scheme is organized by an employer to provide pension benefit for their employees.

Parametric Reform: A reform option that retains the structure and administration of the system but changes some main elements of the parameters, these include the contribution rate or the retirement age.

Pay-As-You-Go (PAYG): This is a system where current benefits are financed by current contributions.

Replacement Rates: The value of a pension as a proportion of a worker's wage for a given base period. It tells how much of a worker's income is being replaced by his/her pension.

Systemic Pension Reform: A type of pension reform that replaces the old system with a new one that changes how benefits are calculated, the source of funding and the administration of the system.

Transition Cost: The gap between revenues and contributions that develops when some of the contribution is diverted to a new funded system while the promised benefits continue to be paid to current retirees and older workers under the old PAYG system.

Vesting Period: The minimum time required to qualify for a full pension.

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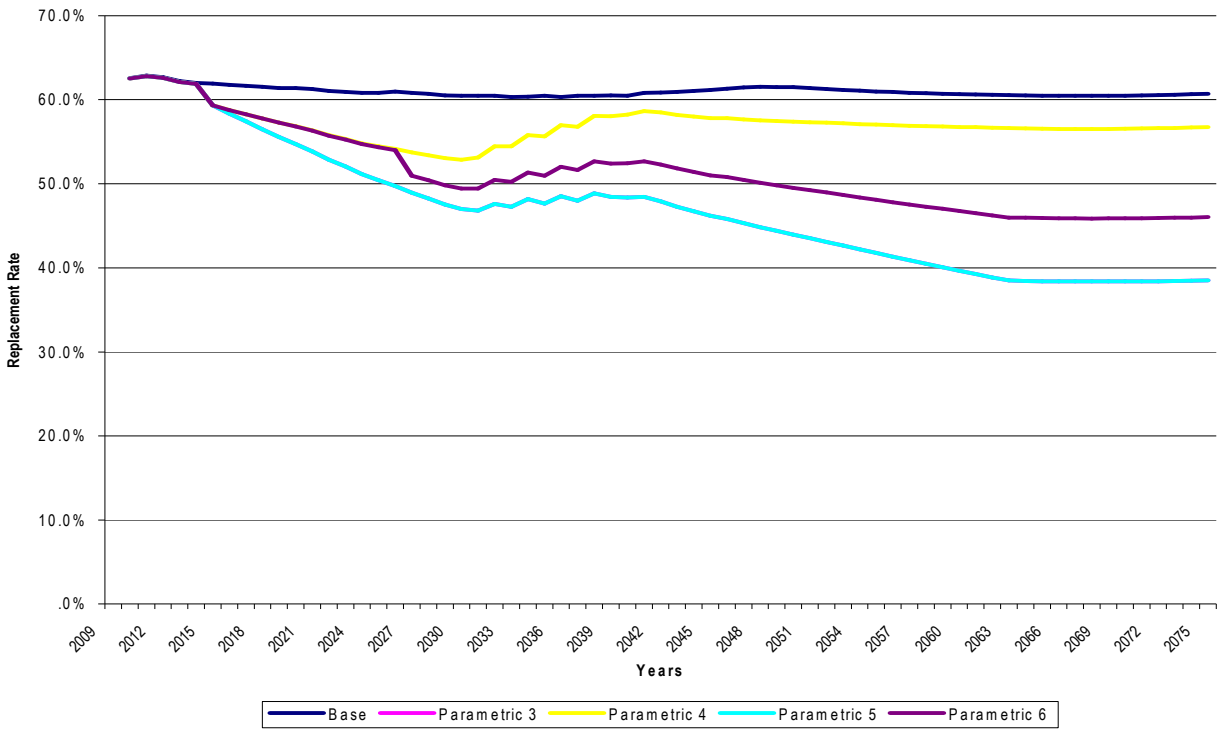
5. Appendix 1

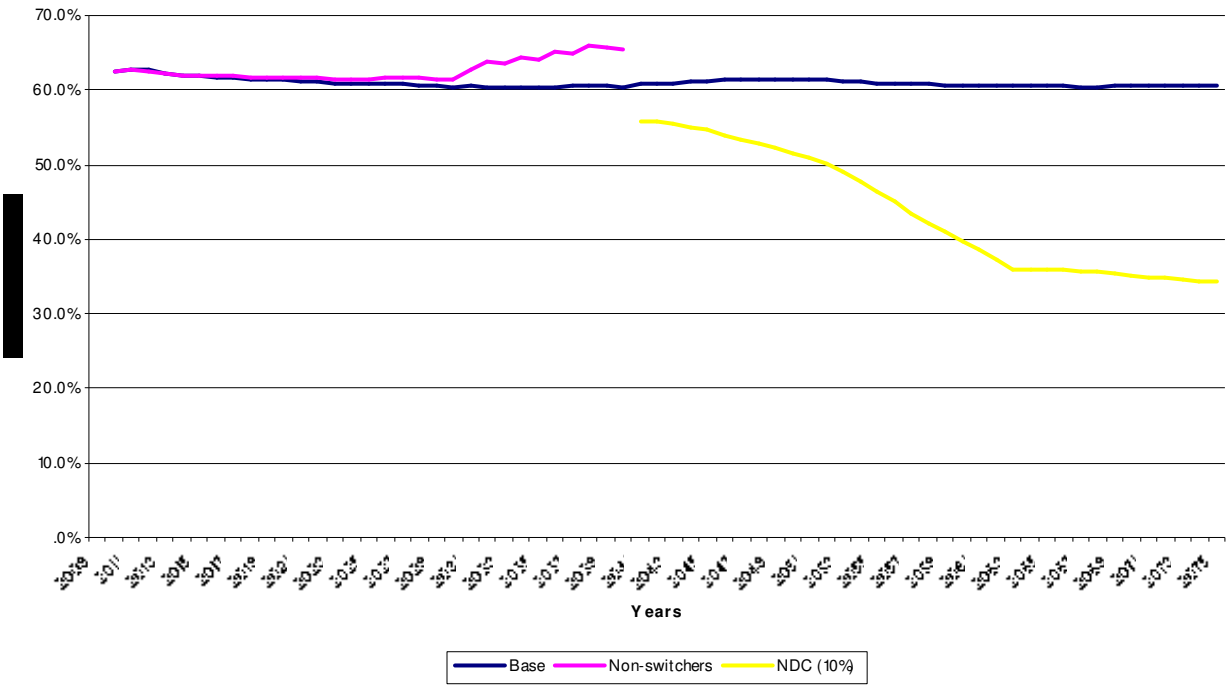
Additional Scenarios

Reform Scenarios	Contribution rate (employer + employee)	Accrual rate	Interest Rate	Applies to
Parametric Reform 3	10%+10%	1.5%		Everyone
Parametric Reform 4	5%+5%	2.2%		Everyone
Parametric Reform 5	5%+5%	1.5%		Everyone
Parametric Reform 6	10% + 10%	1.8%		Gradually from 2.2% in 2015 to 1.8% in 2025. 50years of age and older are exempted and receive 2.2%
Notional Defined Contribution	10% + 10%		wage growth	40 years of age and younger

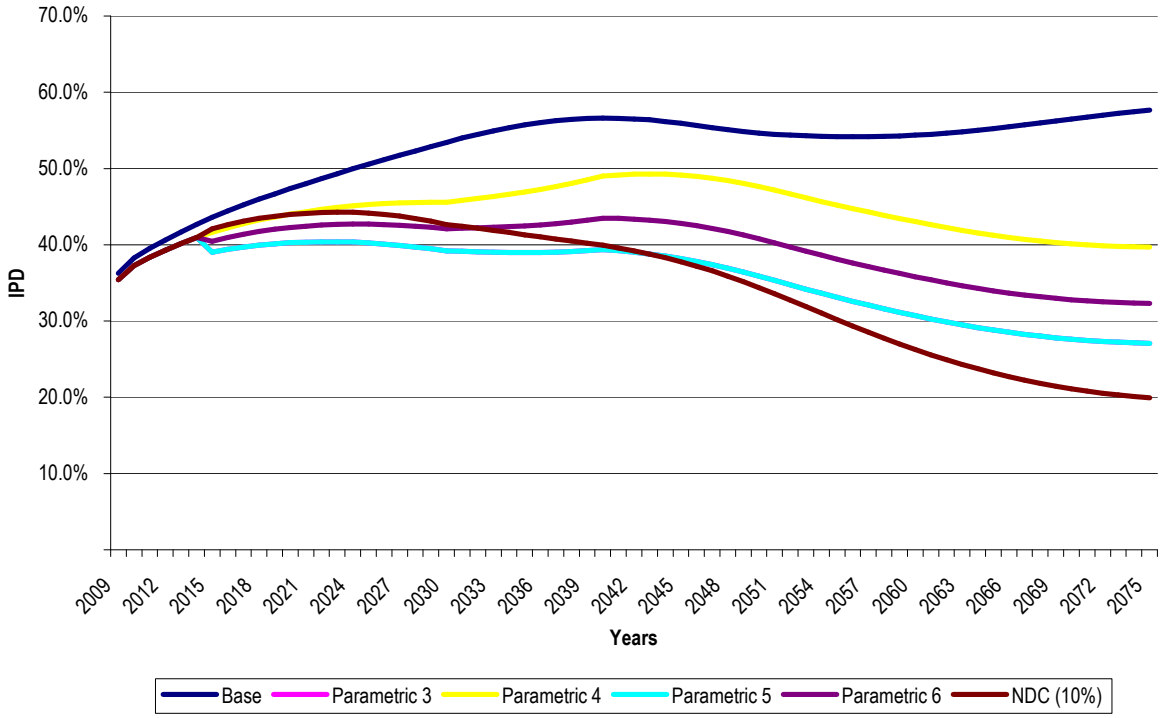
Average Replacement Rates for New Retirees (Parametric Reform)



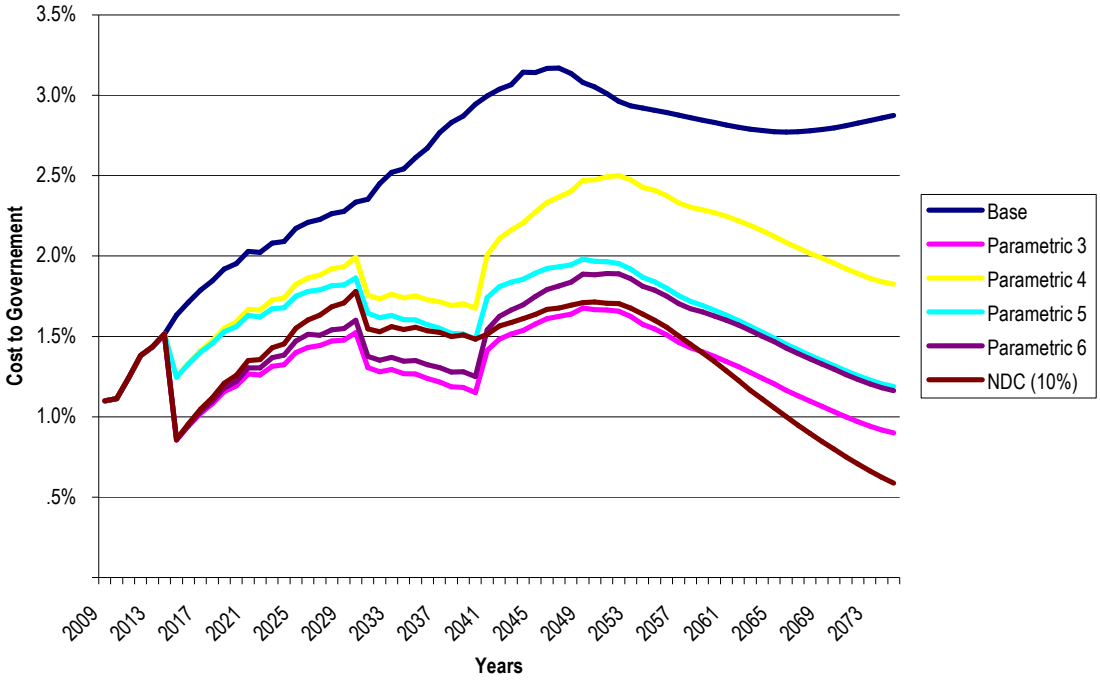
Average Replacement Rates for New Retirees (Structural Reform)



Total Implicit Debt as a Percentage of GDP



Cost to the Government as a Percentage of GDP (Contribution and Deficit)



6. APPENDIX 2

Assumptions

Macroeconomic Trends	2009	2010	2011	2012
Real GDP Growth	-3.0%	-0.1%	1.8%	2.0%
Productivity Growth of Minimum Wage Worker	0.0%	0.0%	0.0%	0.1%
Inflation Rate	10.2%	11.0%	7.0%	6.6%

Macroeconomic Trends	2013	2014	2015	2075
Real GDP Growth	2.0%	2.1%	2.1%	2.0%
Productivity Growth of Minimum Wage Worker	0.3%	0.4%	0.5%	2.0%
Inflation Rate	6.7%	5.5%	5.5%	4.0%

	2009	2011	2021	2031	2041	2051	2061	2071	2075
Male									
Life Expectancy: At Birth	74.6	74.9	76.1	76.6	77.1	77.7	78.4	79.0	79.3
At Age 20	56.6	56.8	57.6	57.9	58.3	58.7	59.2	59.6	59.8
At Age 60	20.0	20.2	20.8	21.1	21.3	21.7	22.1	22.5	22.6
At Age 65	16.2	16.3	16.9	17.1	17.4	17.7	18.0	18.4	18.6
At Retirement	20.0	20.2	20.8	21.1	21.3	21.7	22.1	22.5	22.6
Retirement Age	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Retirement Portion/Life Length(%)									
Age 15+	30.8%	30.9%	31.6%	31.9%	32.2%	32.5%	32.9%	33.3%	33.5%
Age 20+	33.3%	33.5%	34.2%	34.5%	34.8%	35.2%	35.6%	36.0%	36.1%
Individual Support Ratio									
Age 15+	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0
Age 20+	2.0	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.8
Female									
Life Expectancy: At Birth	79.1	79.4	80.9	81.7	82.6	83.4	84.2	85.1	85.5
At Age 20	60.5	60.8	62.0	62.7	63.3	64.0	64.8	65.5	65.9
At Age 60	22.7	23.0	24.0	24.5	25.1	25.6	26.2	26.9	27.1
At Age 65	18.5	18.7	19.7	20.1	20.7	21.2	21.7	22.3	22.5
At Retirement	22.7	23.0	24.0	24.5	25.1	25.6	26.2	26.9	27.1
Retirement Age	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Retirement Portion/Life Length(%)									
Age 15+	33.6%	33.8%	34.8%	35.3%	35.8%	36.3%	36.8%	37.4%	37.6%
Age 20+	36.2%	36.5%	37.5%	38.0%	38.5%	39.1%	39.6%	40.2%	40.4%
Individual Support Ratio									
Age 15+	2.0	2.0	1.9	1.8	1.8	1.8	1.7	1.7	1.7
Age 20+	1.8	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.5