



# 16<sup>th</sup> Actuarial Review

of the  
National Insurance Fund,  
Unemployment Fund &  
Severance Fund  
of Barbados as of  
December 31, 2017



## NATIONAL INSURANCE OFFICE

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December 9<sup>th</sup>, 2019

The Honourable Mia Amor Mottley, Q.C., M.P.  
Prime Minister  
Minister of Finance, Economic Affairs and Investment,  
National Security and the Civil Service  
Government Headquarters  
Bay Street  
ST. MICHAEL

Dear Minister:

In accordance with Section 34 of the National Insurance and Social Security Act, which requires that an actuarial review of the National Insurance Scheme be conducted every three years, I am pleased to submit the report of the 16<sup>th</sup> Actuarial Review, prepared as at December 31<sup>st</sup>, 2017.

This Review has been conducted by Mr. Derek Osborne (FSA), the National Insurance Board's Consultant Actuary of Morneau Shepell.

Yours sincerely,

Mr. Ian Gooding-Edghill, M.P.  
Chairman  
National Insurance Board

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# Abbreviations and Acronyms

COLA	Cost of Living Adjustment
GDP	Gross Domestic Product
GOB	Government of Barbados
IE	Insurable Earnings
ILO	International Labour Office
IPS	Investment Policy Statement
ISSA	International Social Security Association
IT	Information Technology
LTB	Long-term Benefits
NI	National Insurance
NIB	National Insurance Board
NIF	National Insurance Fund
NIS	National Insurance Scheme
OECD	Organisation for Economic Co-operation & Development
PAYG	Pay-as-you-go
STB	Short-term Benefits
SOE	State Owned Enterprises
TFR	Total Fertility Rate

# Introduction

The Barbados National Insurance Scheme (NIS) began operations on June 5, 1967. It currently covers all employed and self-employed persons and offers five main types of social security benefits with payments from three separate funds. The National Insurance Fund covers short-term benefits, long-term benefits or pensions and employment injury benefits, while the Unemployment Fund and Severance Fund cover unemployment benefits and severance payments, respectively. All benefits are financed by contributions which are levied on employment earnings up to a wage ceiling and are paid by employers, employees and self-employed persons. Funds that have accumulated in previous years that are not yet required for the payment of benefits are invested locally, regionally and internationally in various types of securities and properties.

This is the report of the 16th Actuarial Review of National Insurance, Unemployment and Severance Funds and it is being prepared as of December 31, 2017, three years after the 15th Actuarial Review. Section 34 of the National Insurance and Social Security Act requires that such reviews be conducted at three year intervals.

The main purpose of periodic actuarial reviews is to determine if the social security system in Barbados operates on sound financial and actuarial bases and if it provides adequate and affordable levels of income protection. Where considered necessary, recommendations aimed at ensuring that these objectives can be achieved for current and future generations are made.

For this review, 60-year demographic and financial projections have been performed for the National Insurance Fund while 10-year financial projections have been made for the Unemployment and Severance Funds. It should be noted that these projections are dependent on the underlying data, methodology and assumptions concerning uncertain future events and that the outcomes and eventual experience will most likely differ, possibly materially, from that indicated in the projections. Therefore, in accordance with the National Insurance Act, periodic actuarial reviews should be conducted. The next Actuarial Review of the three Funds is due as at December 31, 2020.

Although there were inconsistencies in NIS data provided, especially in financial statements of the three funds, the overall data provided is considered acceptable for the primary purpose of this review. In some instances, data relationships noted from previous actuarial reviews helped determine assumptions. Revisions made to financial statements that were provided for the preparation of the 15th Actuarial Review resulted in some amounts presented in this report being different from those presented in the previous report. Actual Fund balances as of December 2018 used for projections have been estimated. While these data issues may affect specific projected rates and years when key events are projected to occur, they do not, however, materially affect the general outlook for the three Funds and the conclusions drawn from the results presented.

The actuary visited Barbados in October 2018 and February 2019 and held discussions with the Board, the Acting Director, and staff of the National Insurance Office. He wishes to thank Mrs. Jennifer Hunte - Acting Director, Mrs. Janice Estwick - Acting Financial Controller, Mr. Luther Jones - Manager Investments, Ms. Thamie Clarke - Actuarial Analyst, and all other members of the National Insurance staff who assisted with this review.

October 25th, 2019

# Executive Summary

In October 2018 the National Insurance and Severance Funds suffered from one of the key risk factors associated with pre-funding social security benefits – a significant loss on its investments. Through a debt restructuring exercise that was part of the Government's economic reform plan, the NIS lost \$1.3 billion or 27% of the face value of all investments. This loss will have a significant impact on the projected outlook of the National Insurance Fund and future contribution levels required by employers and workers to ensure long-term sustainability.

Periodic actuarial reviews of the three Funds provide a comprehensive assessment of the current and projected state of Barbados' social security system. They also provide policy recommendations for changes designed to ensure that a suitable balance between benefit adequacy and financial sustainability is achieved for both current and future periods. This actuarial review analyses experience between 2015 and 2017 and presents prospects for the National Insurance, Unemployment and Severance Funds. Experience in 2018, including the effect of debt restructuring, is factored into all analyses and recommendations.

## Experience During The Review Period

During the 3-year review period, real GDP growth was positive and inflation was low. While wage growth was subdued and unemployment rates were stable there was slight growth in the employed labour force. The Government of Barbados' fiscal situation remained challenged and at the end of 2017, with IMF estimates placing central government debt was 157% of GDP.

Following is a summary of key experience of the three Funds under review:

- The number of NIS contributors increased slightly.
- Payouts for all pension-type benefits increased as expected.
- Interest rates on commercial bank fixed deposits were low while rates on Government of Barbados debt remained relatively high.
- Total National Insurance Fund (NIF) expenditure exceeded contribution income in two of the three years.
- As at December 2017, total NIF reserves were \$5.3 billion, 7.2 times expenditure in 2017. Outstanding contributions totalled \$330 million.
- The portion of combined investments held in government and quasi-government securities remained at around 74%, well above target allocations in the Investment Policy.
- 95% of combined Funds' assets are invested in Barbados.
- Cash plus investments in the Unemployment Fund increased to \$64 million at the end of 2017, nearly twice annual benefit payments.
- The Severance Fund continued to generate surpluses in an environment of business closures and worker layoffs.
- Challenges related to the installation of an upgraded insurance administration system continued to plague the NIS with delays in the payment of benefits.
- The NIS has not issued NIF annual reports since 2011 and has not submitted to the Minister audited financial statements since 2009. By the end of 2019 the Board expects to be more current with both annual reports and audited financial statements.

In 2017 the Board developed a set of Good Governance Guidelines. The purpose of these Guidelines is to assist the management of the NIS and to facilitate an improved understanding of the corporate governance, legal obligations and better practices of the NIS. The Board is commended for this important step towards enhancing good governance at the NIS.

## Effect of Debt Restructuring

In October 2018, the Government's debt restructuring exercise resulted in NIS losing \$1.3 billion offset in bonds in lieu of debt by \$0.4 billion in investments. Following is a summary of the net effect on each Fund as of October 1, 2018.

Fund	Before Exchange	After Exchange	Change
<b>National Insurance</b>	\$4,721m	\$3,821m	(\$900m)
<b>Unemployment</b>	\$18m	\$18m	-
<b>Severance</b>	\$191m	\$140m	(\$51m)

The loss of investments has not affected NIS' ability to meet its current obligations. Provided that there is no sharp decline in contribution cash receipts there are sufficient liquid assets to meet benefit payments for many years.

## National Insurance Fund

This report's assessment of National Insurance policy and design indicators suggests that current contribution and benefit provisions generally provide a very good level of benefit adequacy and income protection to most workers and pensioners. The legislated annual adjustments of the earnings limit and pensions have been effective in replacing most of the price inflation felt by pensioners and maintaining adequate insurance coverage for higher paid workers. No adjustments were made in 2015, 2016 and 2018 but the 2017 adjustment covered both 2016 and 2017.

For this Review three sets of 60-year projections of Barbados' population and National Insurance Fund finances have been performed so that a range of reasonable prospects for the Fund may be assessed. These projections are based on there being no changes to the current contribution rate and legislated benefit rules. Given the uncertainty in projecting such an extended period, the timing of certain events and the rates that will apply are presented as ranges.

1. Except for under the Optimistic scenario until 2058, total expenditure is expected to exceed contribution income in all but the two years after 2021.
2. The Fund will be depleted between 2041 and 2077.
3. The pay-as-you-go rate in 2077 will be between 23% and 34%.
4. The average long-term cost of benefits over the next 60 years, often referred to as the general average premium, is between 22% and 28%.

These results are based on newly issued Barbados Government debt being redeemed as scheduled at full face value. Should the GOB restructure any of its debt held by the NIF again, the outlook for Fund finances would be worse than presented above.

Had there been no restructuring of Government debt in 2018, projected fund depletion would have been in 2059 instead of 2051 as now projected under the Best Estimate scenario. However, with the expectation that debt restructuring has improved the economic outlook for Barbados, projected long-term NIF costs are lower under this Review than under the previous Review.

## Unemployment & Severance Funds

During the extended period of economic challenges, Unemployment Fund experience was consistent with expectations - lower contributions, increasing benefits and a drawing down of reserves that had accumulated during stronger economic times. During the period 2015 to 2017 contributions were boosted by the transfer of the full Severance Fund contributions ( $\frac{1}{2}\%$  of insurable earnings) from private sector employers. The Fund experienced surpluses in each year and cash plus investments totaled \$64 million at the end of 2017.

The reallocation of Severance Fund contributions to the Unemployment Fund was reduced to  $\frac{1}{4}\%$  effective January 2019 and will cease at the end of 2020. Short-term projections of the Unemployment Fund indicate that the Fund is likely to have sufficient reserves to meet current expenditure through 2022 without any additional rate increase once most contributions are paid in cash. This is however dependent on the value of backlogged claims that are being addressed in 2019.

The Severance Fund continues to increase in size even though no contributions are collected. At the end of 2017, reserves exceeded \$200 million. The limited payment and reimbursement rules of the Severance Act do not appear to be in line with prevailing employment practices and behaviour. Even with the transfer of the  $\frac{1}{2}\%$  contribution rate to the Unemployment Fund and Training Fund until 2020, the Severance Fund is expected to experience surpluses each year.

Recommendations for the Severance Fund are:

- (i) Perform a comprehensive review of the provisions of the Severance Payments Act and determine what amendments are required to create a scheme that better meets the needs of both employers and workers when redundancy either occurs or is being considered.
- (ii) Establish written investment policy statements specifically for each of the Unemployment and Severance Funds or provide specific guidelines for these two funds in the National Insurance Fund's Investment Policy.

## Recommendations

A sustainable national pension system is one that over the long term, delivers on its financial promises in such a way that the financial burden is borne fairly equitably by participants. Under this definition, these results indicate that the NIS is not financially sustainable over the long term at the current contribution rates and pension provisions, as future generations will be required to contribute substantially more than previous and current generations.

To enhance the likelihood of the NIS being both financially and inter-generationally sustainable in the long-term while providing relevant benefits, policymakers should be outcome focused in their decision making. An outcome focused approach implies that the NIS is designed and managed around objectives, preferences and "what ifs". Leaders should not depend on "hoped- for" results but instead prepare for rational responses to specific potential outcomes such as population aging, economic downturns, investment losses and natural disasters.

The many recommendations made throughout this report are summarised below. These recommendations are in keeping with the primary NIS objectives of consistently delivering on its promises and maintaining a suitable balance between long-term sustainability and benefit adequacy. Foremost among these recommendations is the creation of policies dealing with benefits and funding, and amendments to the existing Investment Policy.

1. Establish a Funding (Contribution) Policy and a Benefits Policy that include explicit documentation of what the NIS seeks to accomplish, what circumstances it wishes to avoid and where objectives conflict, what are its priorities.
  - The Funding Policy will include target funding levels, why, when and by how much contribution rates should be increased as well as the maximum contribution rate considered acceptable.
  - The Benefits Policy will include items such as whether certain benefits are amended or pension increases not granted if experience is unfavourable and the projected outlook is worse than previously expected.
2. Pension reform aimed at enhancing long-term sustainability while maintaining benefit adequacy should occur immediately. Specific reforms should be driven by the Funding and Benefits policies that would be created as part of pension reform discussions with all stakeholders. Given the significant socio-economic and labour market changes since 1967, along with the expansion of private sector pensions and advanced technology, pension reform should focus on what NIS would look like if it was being created for the first time in 2019.
3. For the Investment Policy, revise target asset allocations given the expectation that there will be no further investment in GOB securities. Private sector investment opportunities should be evaluated thoroughly ensuring that they fit well with NIS short and medium-term liquidity needs. A specific goal for placing additional funds internationally should be set.
4. The NIS faces many administrative and governance challenges which have resulted in significant deficiencies in operations, reporting and decision making. Many of these deficiencies stem from inadequate skills, experience and competencies at various levels throughout the Department. It is recommended that a review of the Department's organizational structure be conducted with a goal of determining the ideal governance structure for the NIS.

The long-term sustainability of the NIS requires maintaining a system that all stakeholders can count on to evolve and adapt to changing circumstances, at a cost that is both affordable for current and future generations. The future is uncertain, and as recent experience in both Barbados and elsewhere in the region has shown, changes could be sudden and significant. Since a desirable outcome cannot be guaranteed, the Board and all stakeholders should plan for and manage risk proactively. Another round of comprehensive pension reform discussions, in which all stakeholders are actively engaged, is an ideal opportunity to begin this process.

# Chapter 1: National Insurance Fund Experience Since The 15th Actuarial Review

## 1.1 Amendments to Act & Regulations

Each year National Insurance & Social Security Orders that facilitate the annual, automatic adjustments to the earnings limit, pensions and grants are signed by the Minister with responsibility for National Insurance. For the earnings limit, annual adjustments represent the change in national wage index for the previous year while for pensions and benefits, the lower of the previous 3-years average price inflation and previous 3-years average change in wage index is used. The following table shows that there was only one adjustment in the 3-year review period.

**Table 1.1. Earnings Limit and Pension Adjustments, 2015 to 2017**

Change Effective	Monthly Earnings Limit (Ceiling)	Increases To Earnings Limit	Minimum Contributory Pension (per week)	Increases To Pensions & Grants
January 2015	\$4,360	-	\$179	-
January 2016	\$4,360	-	\$179	-
January 2017	\$4,650	6.6%	\$190	6.24%

Most of the pension reforms enacted in 2006 have been fully phased in with two exceptions:

- i. the normal pension age increased to 67 in January 2018.
- ii. Until 2022, calculations for Old Age Contributory Pensions will use a combination of the “old” and “new” bases.

Further details of all contribution and benefit provisions can be found in Appendix A.

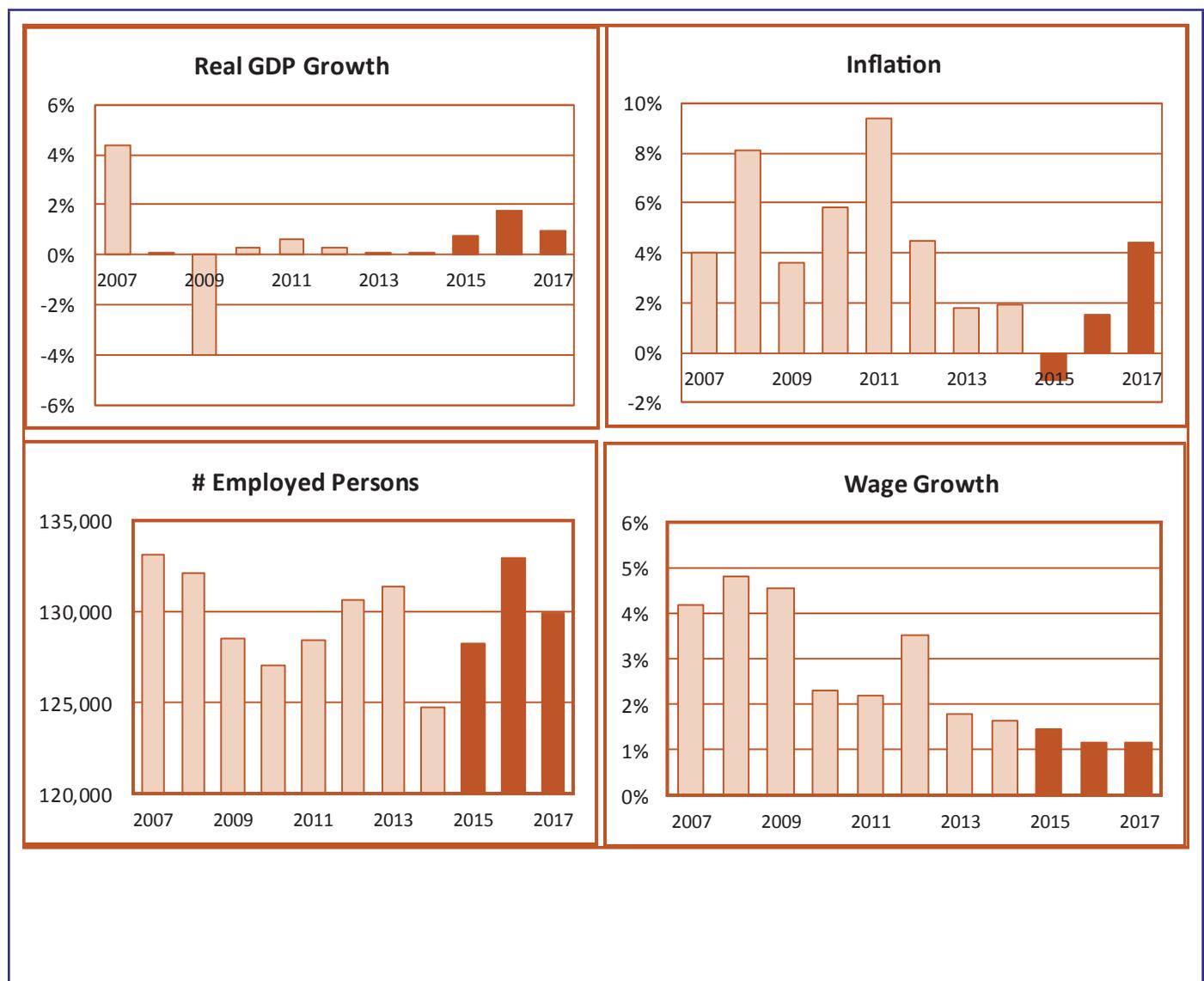
## 1.2 Economic Experience

The National Insurance Fund (NIF)'s two primary sources of income, contributions and earnings on investments, are closely linked to economic performance and labour market changes. Some benefits are also affected by economic changes. For example, more people are likely to claim Old Age Contributory Pension prior to normal pension age if they lose their job and cannot find a new one. Economic conditions, therefore, directly impact NIF finances.

As shown in the charts in Figure 1.1, there was positive economic growth in Barbados during 2015 to 2017 after seven years of minimal growth. Average GDP growth in the 3-year review period was 1.2% per annum. While labour force surveys suggested that employment levels fluctuated during the review period, they increased from their lowest level in over a decade.

Inflation during the review period averaged 1.6% per annum. The average wage increase was 1.3%. Real wages, therefore, declined during the review period.

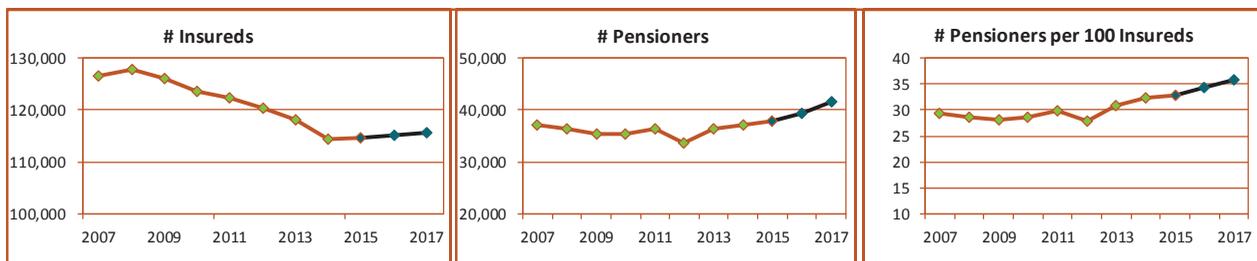
**Figure 1.1. Key Economic Indicators, 2007 to 2017**



### 1.3 National Insurance Fund Experience

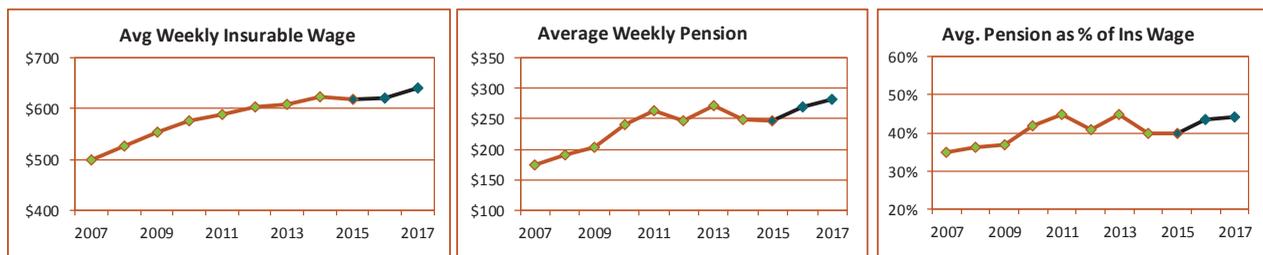
In line with recent economic growth, the number of insured persons making contributions increased slightly during the review period after six years of decline. (Figure 1.2 below) The number of pensions in payment has increased as expected. The key result from the number of pensioners growing at a faster rate than the number of contributors is an increase in the demographic ratio (number of pensioners per 100 insured persons) from 32 to 36 between 2014 and 2017.

**Figure 1.2. Contributors & Pensioners, 2007 to 2017**



Both the average insurable wage and average pension amount increased each year. (Figure 1.3 below) Average pensions divided by average insurable earnings is often referred to as the replacement ratio. This ratio has generally increased over the past decade. The effect of pension reforms on new pensions has contributed to slowing the growth of average pension amounts and replacement ratios.

**Figure 1.3. Average Insurance Wages & Pensions in Payment, 2007 to 2017**



The following table provides summary income and expenditure amounts for 2015 to 2017. A more detailed version of the National Insurance Fund finances for these years may be found in Appendix D.

The following table provides summary income and expenditure amounts for 2015 to 2017. A more detailed version of the National Insurance Fund finances for these years may be found in Appendix D.

**Table 1.2. Summary of NIF Finances, 2015 – 2017 (millions of \$'s)**

	2015	2016	2017
Income			
Contributions (accrual basis)	626.7	532.3	623.7
Investment	289.6	323.6	332.8
Other	4.6	4.8	3.4
Total	920.9	860.8	959.9
Expenditure			
Benefits	527.7	606.6	666.5
Administrative	73.7	77.5	75.4
Total	601.4	684.1	741.9
Excess of Income over Expenditure	319.5	176.7	218.0
Revaluation Reserve & Prior Year			
Adjustments	(66.7)	(99.5)	52.7
<b>Reserves (end of year)</b>	<b>4,935.3</b>	<b>5,012.5</b>	<b>5,283.2</b>

Note: Due to rounding, some totals may not correspond with the sum.

At the end of 2017, the NIF had \$807 million of receivables comprising:

- Contributions receivable: \$572 million
- Accounts receivable: \$235 million

#### **1.4 Experience Compared With Projections of 15th Actuarial Review**

In the 15th Actuarial Review, projections were prepared under three scenarios – Best Estimate, Optimistic and Pessimistic. Shown below is a comparison of actual cumulative experience over the 3-year period with the projections of the Best Estimate Scenario.

**Table 1.3. NIF Projections from 15th Actuarial Review Compared With Actual Experience**

	<b>2015-2017 Projected (millions of \$'s)</b>	<b>2015-2017 Actual (millions of \$'s)</b>	<b>% Difference</b>
Contribution Income	\$1,655	\$1,788	8% above projected
Investment & Other Income	\$898	\$962	7% above projected
Benefit Expenditure	\$1,717	\$1,803	5% above projected
Administrative & Other Expenditure	\$222	\$227	2% above projected
2017 Year-end Reserves	\$5,231	\$5,283	1% above projected
Reserve-Expenditure Ratio	7.7	7.2	Lower than projected

Actual income and expenditure were higher for all categories over the three year review period. For contribution and investment income where the differences were greatest, accrual based accounting and revisions to financial statements account for a large portion of the differences.

## 1.5 Investments

At the end of 2017, National Insurance Fund investments stood at \$4.6 billion, up from \$4.2 billion at the end of 2014. During the review period, the average yield on investments was 7.1% and the average yield on reserves was 7.3%. With inflation averaging 1.6% per annum, the average real rate of return on reserves was 5.5%.

The following table provides a summary of the investment mix of the National Insurance Fund at year-ends 2014 and 2017.

**Table 1.4. Summary of NIF Investments, Year-end 2017 & 2014 (millions of \$'s)**

<b>Investment Category</b>	<b>December 2017</b>		<b>December 2014</b>	
	<b>\$'s</b>	<b>%</b>	<b>\$'s</b>	<b>%</b>
<b>Fixed Deposits</b>	77.4	1.7	90.6	2.2
<b>Treasury Bills &amp; Notes</b>	824.3	17.8	782.9	18.8
<b>Government Bonds</b>	2,361.3	51.0	1,988.3	47.8
<b>Other Bonds &amp; Loans</b>	453.6	9.8	557.7	13.4
<b>Equities</b>	627.2	13.5	456.8	11.0
<b>Real Estate</b>	287.4	6.2	283.3	6.8
<b>Total</b>	<b>4,631.1</b>	<b>100.0</b>	<b>4,159.6</b>	<b>100.0</b>

Note: Due to rounding, some totals may not correspond with the sum.

Notable changes in asset mix between 2014 and 2017 are:

- a) Increase in the percentage of the Fund held in Barbados Government Bonds offset partially by a reduction in the percentage held in T-Bills and Notes.
- b) Reductions in the amount and percentage held in Fixed Deposits and Other Bonds & Loans.
- c) Increase in the value of Equities, due mainly to unrealized gains as no new funds were placed internationally since 2009 due to Central Bank restrictions.

The Investment Policy Statement which guides National Insurance Fund investments was last revised in May 2013. Among other things, the Policy sets out investment objectives and guidelines for the Fund and a strategic asset allocation. The following table shows the actual asset mix at December 31, 2017 compared with the target allocations found in the Investment Policy.

**Table 1.5. Asset Mix Compared To IPS Strategic Allocation, Dec .2017**

<b>Investment Class</b>	<b>Actual</b>	<b>Target</b>	<b>Variance</b>
<b>Money Market</b>	1.7%	5%	<b>Well under</b>
<b>Fixed Income</b>	78.6%	62%	<b>Well over</b>
<b>Equities</b>	13.5%	16%	<b>Slightly under</b>
<b>Real Estate</b>	6.2%	12%	<b>Well under</b>
<b>Alternatives</b>	<b>0.0%</b>	<b>5%</b>	<b>Significantly under</b>

A detailed analysis of the variances between actual and target allocations for fixed income securities and equities is shown below.

**Table 1.6. December 2017 Asset Mix Compared With Investment Policy Guidelines**

<b>Investment Class</b>	<b>Actual</b>	<b>Target</b>	<b>Variance</b>
Fixed Income			
• Debentures - Gov't of Barbados	51.0%	25%	Well over
• Treasury Notes	17.8%	19%	In line
• Statutory Corporations Debt	5.1%	10%	Under
• Regional Government Debt	1.1%	2%	Under
• Corporate Loans	2.3%	3%	In line
• Corporate Debt	1.4%	3%	Under
Equities			
• Local & Regional	6.2%	7%	In line
• International	7.4%	9%	In line

As shown above the portion held in GOB debentures was just over twice the established target.

## 1.6 Subsequent Events & Experience

There were no adjustments to the earnings limit, grants or pensions in January 2018.

Following a policy decision by the Government of Barbados, the amounts for Minimum Contributory pension and Non-Contributory pensions were increased effective July 2018 by rates well in excess of the adjustment prescribed in the annual adjustment policy. The Non-contributory pension amount was increased from \$155 to \$225 per week and the Minimum Old-Age Contributory pension from \$190 to \$235 per week.

All Contributory pensions were increased in January 2019 by 1.6% and the Earnings limit was increased from \$4,650 per month to \$4,820 per month.

In October 2018, the Government of Barbados, through a debt restructuring exercise, exchanged the portfolio of NIS debt instruments and arrears owed by the GOB and several SOEs as of October 1, 2018 in return for various series of new GOB debt instruments. The following table highlights the effect of the debt restructuring on the NIF.

**Table 1.7. Effect of Debt Exchange on all Funds Managed by the NIF (October 2018)**

Investment Category	Before Exchange	After Exchange			Total
		Series B	Series E	Series F	
Treasury Bills	\$183	\$183			\$183
Notes & Debentures	\$3,384		\$2,115		\$2,115
Net Arrears from GOB	\$197	\$99		\$99	\$197
Net Arrears from SOE	\$264	\$132		\$132	\$264
GOB Loans & Bonds	\$38		\$24		\$24
SOE Loans & Bonds	\$102		\$63		\$63
Totals	\$4,167	\$414	2,202	\$231	\$2,846

Totals may be off due to rounding

As shown above, the total face value of government securities and arrears held by the Funds that the NIB manages was reduced from \$4.17 billion to \$2.85 billion, a loss of \$1.32 billion due to debt restructuring.

A description of the three bond series that NIS now holds is found in Table 1.8 below.

**Table 1.8. Description of Exchange Securities**

Series	Initial Instrument	Structure of New Instrument	Interest Rate
<b>B</b>	<ul style="list-style-type: none"> <li>Treasury Bills</li> <li>Net arrears from GOB &amp; SOEs (50%)</li> </ul>	11 amortising strips with maturities ranging from 5 to 15 years	1% for first 3 years 2.5% for year 4 3.75% to maturity
<b>E</b>	<ul style="list-style-type: none"> <li>Notes &amp; Debentures</li> <li>GOB &amp; SOE loans &amp; bonds</li> </ul>	25-year amortising bond at a discount of 37.5%	4% for first 3 years 8% thereafter
<b>F</b>	<ul style="list-style-type: none"> <li>Net arrears from GOB &amp; SOEs (50%)</li> </ul>	4-year bond with 42 monthly principal repayments starting after 6 months	0%

The changes in asset mix of the NIF between December 2017 and October 2018 are shown below.

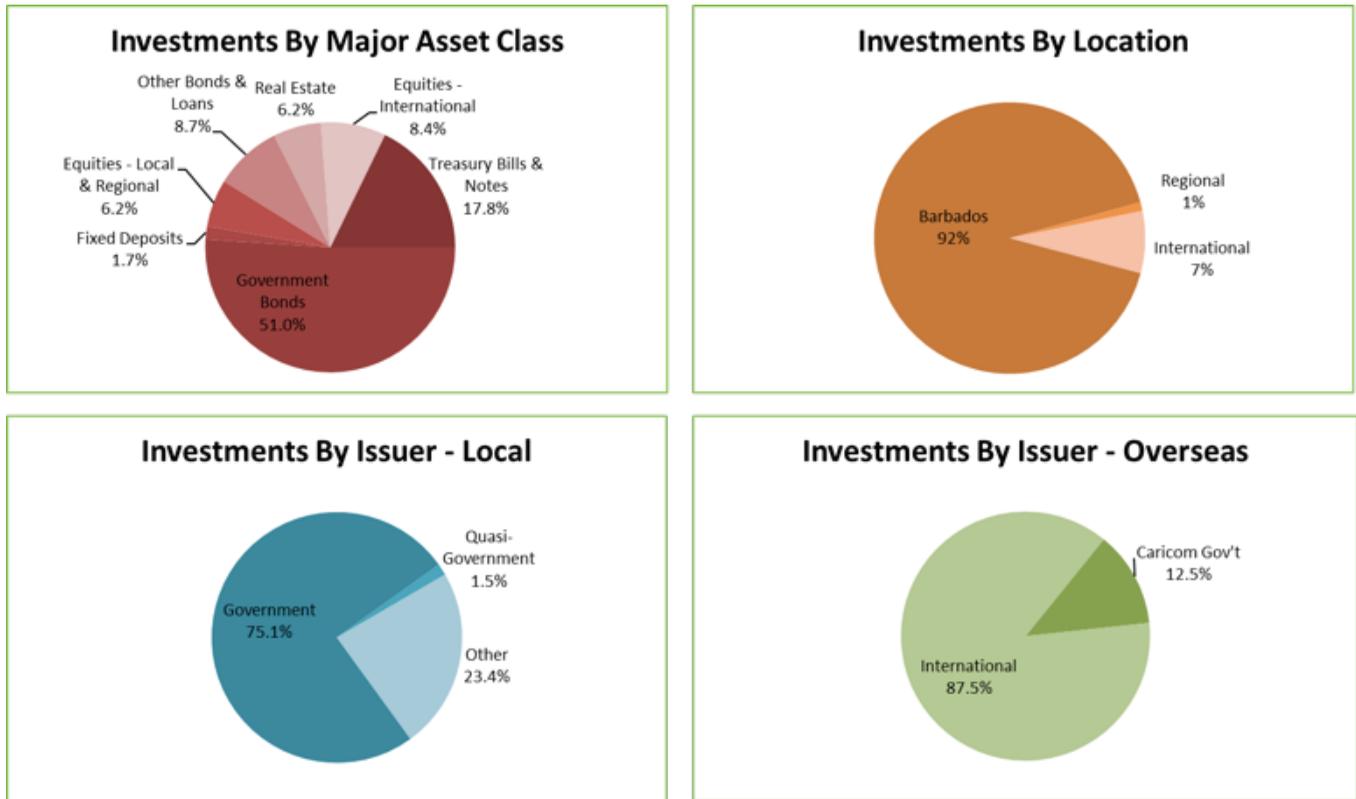
**Table 1.9. Summary of Investments - NIF, October 2018 & December 2017 (millions of \$'s)**

Investment Category	October 2018		December 2017	
	\$'s	%	\$'s	%
<b>Fixed Deposits</b>	53.9	1.7%	77.4	1.7
<b>Treasury Bills &amp; Notes</b>	556.3	16.0%	824.3	17.8
<b>Government Bonds</b>	2,003.9	50.9%	2,361.3	51.0
<b>Other Bonds &amp; Loans</b>	339.0	8.6%	453.6	9.8
<b>Equities</b>	641.4	15.7%	627.2	13.5
<b>Real Estate</b>	287.4	7.1%	287.4	6.2
<b>Total</b>	<b>3,881.9</b>	<b>100.0%</b>	<b>4,631.1</b>	<b>100.0</b>

Note: Due to rounding, some totals may not correspond with the sum.

Diversification is a critical component for the investment of social security assets. How well investments are diversified is often assessed using four criteria:- (i) across various asset classes, (ii) across maturity dates, (iii) across different locations and (iv) by issuer of the underlying securities. The following charts illustrate the diversification of NIF investments as of November 2018, after debt restructuring. With 70% of assets held in public sector (government and SOE) securities, and 10% invested outside of Barbados, NIF assets are poorly diversified.

Figure 1.4. Investments, October 2018



**The Economic Effect of Debt Restructuring**

While the National Insurance, Unemployment and Severance Funds lost \$1.35 billion in investments/assets due to debt restructuring, the obligation on future taxpayers is reduced by \$1.35 billion. For the NIS to recoup this investment loss it will have to collect additional contributions from businesses/employers and workers.

Since the group of individuals and institutions that pays taxes to the Government is almost identical to the group of individuals and institutions that makes NIS contributions, the economic effect of the debt restructuring is not as significant to residents and businesses in Barbados as it may appear to the NIF. The immediate visible negative effect of the exchange is a deterioration in NIS sustainability. Possible positive results from the restructuring exercise are all amounts due from GOB being paid in cash. (See Chapter 5 for further discussion on ensuring future sustainability of the NIF)

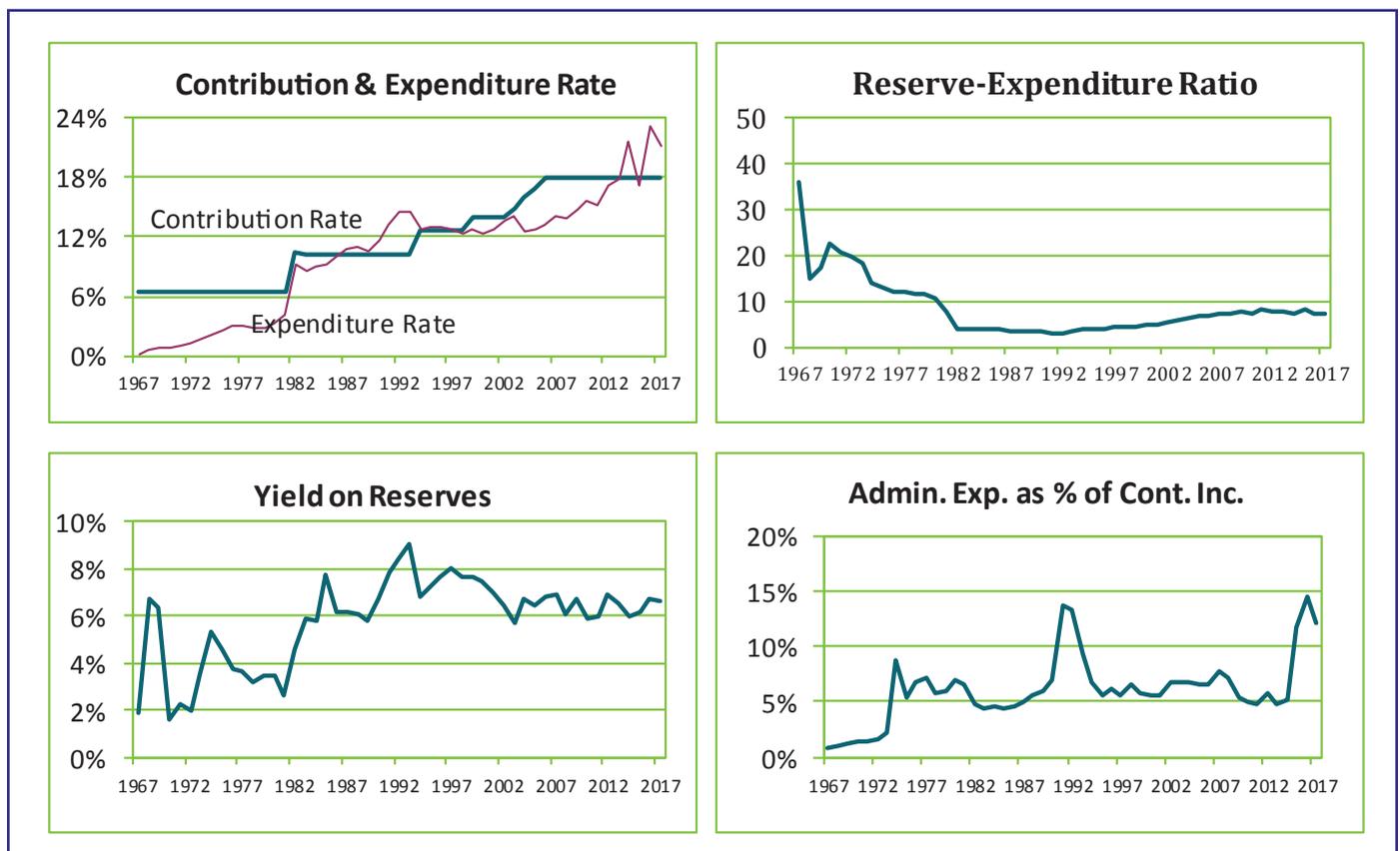
# Chapter 2 Assessment Of Performance & System Design

National social security systems must balance benefit adequacy with affordability and long-term sustainability. There is an obvious trade-off between these concepts:- higher benefits provide larger incomes to beneficiaries, but cost more. On the other hand, inadequate pensions result in pressures to increase benefits or add new ones. This chapter contains a review of past trends for key financial indicators and current design parameters, and examines how well key policy objectives are being met.

## 2.1 Historical Performance, 1967 - 2017

Experience for key financial factors from 1967 to 2017 is presented in the following charts:

Figure 2.1. National Insurance Financial Experience



Contribution income has been volatile in the past few years but on average, has been less than benefit expenditure since 2014. When this occurs, portions of investment income are required to meet benefit expenditure.

Following a series of contribution rate adjustments starting in the mid 1990's, the relative size of reserves increased but in the last few years has started to decrease. Due to high yields on GOB bonds the Fund continued to realise a relatively high rate of return which has contributed to the relative size of reserves remaining close to eight times annual expenditure. While the Fund continues to experience relatively low administrative costs the depreciation of the upgraded IT system costs over only three years resulted in increased costs during the review period. (The GOB's debt restructuring exercise in October 2018 had the immediate effect of reducing the reserve-expenditure ratio from 7.2 to around 6.4.)

Following are values for several key indicators as of the dates of the 14th, 15th, and 16th Actuarial Reviews along with a brief analysis of the changes that have occurred.

**Table 2.1. National Insurance Performance Indicators**

	2011	2014	2017	Comments
1. Avg. Contribution Rate	18.0%	18.0%	18.0%	No change since 2006
2. Expenditure Rate	15.1%	21.7%	21.3%	Significant increase since 2014
3. Benefits as % of GDP	5.0%	6.7%	7.1%	Benefits growing faster than GDP
4. Reserve-Expenditure Ratio	8.0	7.3	7.2	Unchanged in most recent review period
5. 3-year average nominal yield on reserves	6.2%	6.5%	6.3%	Strong returns in the current environment
6. 3-year average real yield on reserves (net of inflation)	-0.1%	3.7%	4.5%	Extended period of strong nominal returns and low inflation
7. Administrative Expenses (3-yr average) as:				
• % of Contributions	5.1%	5.3%	12.8%	Amortization of IT/Admin system costs in 2015 to 2017
• % of Insurable Wages	0.91%	0.95%	2.30%	
8. # of Contributors Per Pensioner	3.4	3.1	2.8	Gradual decrease due to combination of little change in contributors and more pensioners
9. Avg. Pension as % of Avg. Insurable Wage	45%	40%	44%	Incomplete data may account for fluctuations.

Note: Several rates for 2014 are different from those shown in 15th Actuarial Review due to financial statement and data revisions.

These indicators confirm that the reduction in the number of contributors and continued increase in the number of pensioners is placing increased strain on cash flows.

## 2.2 Meeting Policy Objectives

The National Insurance system is mandatory for all employed and self-employed persons and is expected to be perpetual. It has a defined benefit structure where the rules governing eligibility and the amounts payable are defined. Together, the rules and the amounts at which key parameters are set determine benefit adequacy. How well certain rules are enforced, and how well the system is managed, also impact how well policy objectives are met.

To determine how well these objectives are now being met, and how likely they are to be met in the future, an analysis of current contribution and benefit provisions, key rates and parameters as well as actual performance indicators have been reviewed. While some mention is made of short-term and employment injury benefits, this analysis focuses primarily on pensions which accounted for 93% of NIF benefit expenditure in 2018. The broad categories that are assessed are:

- (a) Coverage, which looks at how well workers of all sectors are covered for income security in old age;
- (b) Adequacy, which relates to the ability of pensions to provide a decent standard of living;
- (c) Financial sustainability, which ultimately relates to the affordability of the system to future contributors; and
- (d) Administrative efficiency, which relates to keeping operating and management costs low while delivering quality service.

### 2.2.1 Coverage

With NIS participation mandatory for all employed and self-employed persons, coverage concerns relate to actual participation rates by formal and informal sector workers and the proportion of elderly residents receiving an NIS pension. It is estimated that between 85% and 90% of employed persons make at least one contribution to the NIS each year but only around 15% of self-employed persons contribute. Approximately 16% of workers have earnings at or above the earnings limit

Overall, the NIS provides coverage for a reasonably large portion of the working population.

### 2.2.2 Adequacy

Benefit adequacy can be broken down into two components:

Current adequacy: Are pensions adequate today?

Future adequacy: Under current provisions, will the pension be adequate in the future?

#### Current Adequacy

The minimum contributory pension effective July 2018 is \$235 per week or \$1,018 per month, approximately 38% of the average insurable wage. This is a relatively high pension replacement rate compared to others in the Caribbean and ILO guidelines. Annual adjustments to the minimum rate and all pensions in payment provide further support to maintaining benefit adequacy.

For pensioners receiving more than the minimum, their pension replacement rates are initially between 40% and 60% of their final average insurable earnings. Given that they now receive regular pension adjustments, benefits can also generally be considered adequate.

While new awards are no longer financed by the NIF, the existence of a government-financed Non-Contributory Old Age pension for those who do not qualify for the NIS Contributory Old Age pension or other public or private pensions provides, further income protection for seniors who qualify.

## **Future Adequacy**

A worker who has steady earnings below the earnings limit and contributes to the NIS for a full career sustaining himself/herself predominantly from his employment earnings, can expect a pension of close to 60% of pre-retirement earnings. By ILO and other international standards this is quite high and thus meets reasonable tests of benefit adequacy. The challenge quite often, especially for the self-employed, is that many workers do not have steady wages and do not consistently work and contribute for 35 or 40 years.

Legislated annual adjustments to the earnings limit and pensions should ensure benefit adequacy both at the time of award and throughout the pension payout period as the pension maintains its initial purchasing power. Since no increases were granted in 2015, 2016 and 2018, irregular earnings ceiling and pension increases could affect future benefit adequacy. (The 2017 adjustment provided for inflation in the two previous years.) The other factors that affect the uncertainty of future benefit adequacy relate to those who have employment earnings well in excess of the earnings limit and those who fail to contribute for at least 10 years.

When compared with targeted replacement rates for mandatory social security pensions in OECD countries, the Barbados NIS provides relatively high replacement rates. The NIS pension is

not intended to provide all of the income required to support oneself in old age. Based on the above, current NIS contribution and benefit provisions provide pensions in old age that meet reasonable tests of future benefit adequacy.

When non-pension benefits are considered, the various short-term, employment injury and unemployment benefit provide full income protection for all contingencies that could lead to involuntary loss of employment income.

### **2.2.3 Financial Sustainability**

Assessing the sustainability of a national pension system is complicated. Given the perpetual nature of these systems, the rules that apply to private pensions systems are not appropriate. Therefore, whether current reserves plus future contributions at the current contribution rate are sufficient to meet future expenditure should not be used to determine long-term sustainability. Instead, assessing sustainability involves looking at the cost of the system now and in the future, and considering whether or not employers and workers in the future will be able to afford the cost. A definition of financial sustainability that has become widely used in social security discussions is whether the pension system is able to meet the needs of current generations without compromising the needs of future generations.

By design, the NIF is partially funded and the current contribution rate and accumulated reserves are expected to be adequate to meet all obligations for another 30 to 40 years. With contributions alone no longer sufficient to meet expenditure, increasing portions of investment income will be needed to pay benefits and then eventually investments will have to be liquidated. This is a natural progression for partially funded national pension systems.

As seen in the last eight years, economic and labour market changes can have a significant impact on NIF finances. More recently, the decision by the GOB to write-off a significant portion of the amount owed to the National Insurance and Severance Funds demonstrates that having assets on hand does not necessarily make the fund more sustainable.

It is not possible to determine today the highest contribution rate that workers and employers will be able to afford, or willing to pay, twenty to thirty years from now. The current average rate of 18% is already high by regional standards, but as previously exhibited by stakeholders, significant reforms can be made after wide and open consultation. With the recent loss of 15% of Fund assets and the growing concerns regarding financial sustainability, all stakeholders should once again be given a chance to determine their priorities as it relates to the level of benefits the National Insurance Fund provides.

#### **2.2.4 Administrative Efficiency**

The NIS continues to be a relatively low cost operation with around 5% of contribution income going towards administrative costs. However, the level of service and availability of reliable information remain challenges. Over the past few years the NIS has been faced with major administration system issues which negatively affected claim processing times and lengthy delays in the preparation of financial statements and annual reports.

Unlike most other social security institutions in the region that are operated as quasi-public sector entities where the Board oversees the entire administration, the National Insurance Office is staffed with public servants and the Board manages the Fund. While this approach has its advantages, experience suggests that NIS operations could be more effective if greater autonomy was given to the Board on human resource matters and the conducting of financial audits. (See Chapter 8 for a further discussion of NIS governance structure.)

Recommendations relating to each of these national pension policy objectives are presented in Chapter 5.

# Chapter 3 Best-Estimate Projections

Many demographic and economic factors, such as changes in the size and age structure of the population, economic growth, employment and wage levels and inflation, influence National Insurance Fund finances. Therefore, to best assess the Fund's long-term costs and sustainability, projections of Barbados' total population and the economy are required. For this review 60-year projections have been performed.

In developing all of the assumptions used for the projections, historical trends and reasonable future expectations, as well as the interrelationships between the various assumptions, have been taken into account. Core projections have been performed using assumptions that reflect best estimates. As a result, the set of demographic and financial projection results based on this assumption set is referred to throughout this report as "Best Estimate."

Given the significant uncertainty inherent in forecasting such a long period, projections have also been performed using two additional sets of assumptions. These alternative projection sets, which encompass assumptions that are generally more optimistic and more pessimistic than best-estimate assumptions, are labelled "Optimistic" and "Pessimistic", given the implications for future NIF finances. Results of these projections are presented in Chapter 4.

## 3.1 Population Projections

Barbados has experienced net out-migration for decades while fertility rates have declined and life expectancy continues to increase.

### 3.1.1 Projection Assumptions

Projections of Barbados' population begin with the results of the 2010 census and in each projection year thereafter, fertility, mortality and migration assumptions are applied. Fertility rates are used to estimate the number of births while mortality rates determine how many, and at what ages, people are expected to die. Net migration represents the difference between the number of persons who permanently enter and leave Barbados, and is the most volatile of the three factors. The 2010 population census placed Barbados' population at 277,821.

The total fertility rate (TFR) represents the average number of live births per female of childbearing age in a particular year. If there is no migration, a TFR of 2.1 is required for each generation to replace itself. The number of births in Barbados declined by approximately 25% between 2007 and 2017. For these projections it is assumed that TFR's in Barbados declined from 1.6 to 1.45 between 2010 and 2017 and will increase to 1.5 in 2020, remaining constant thereafter.

Using United Nations mortality tables, current population estimates and the number of deaths in the past few years suggest life expectancy at birth in 2017 of around 76.5 for males and 79.8 for females. Improvements in life expectancy are assumed to occur in accordance with UN estimates. In 2016 and 2017, there were more deaths than births.

The third factor that affects population size is migration. This is the most volatile and most difficult to measure. Using the 2010 census and 2015 population estimates, along with reported births and deaths, implied net out-migration is estimated at 700 per annum between 2010 and 2017. Net out-migration is assumed to continue at a lower rate through 2020.

The economic assumptions used for this report assume stable and positive economic growth and labour productivity in all years. Although simplistic, they approximate usual economic cycles and volatility that encompass periods of expansion and recession. They also account for projected changes in the population and labour force that will provide the capacity for additional output through more workers and increased productivity (real wages).

The following table indicates the principal demographic and economic best-estimate assumptions for this and the previous Review. Further details may be found in Appendix B.

**Table 3.1. Principal Demographic & Economic Assumptions**

		<b>16th Actuarial Review</b>	<b>15th Actuarial Review</b>
<b>Total Fertility Rate</b>		1.45 in 2017 increasing to 1.5 in 2025	1.65
<b>Mortality Improvements<sup>^</sup></b>		Slow	Slow
<b>Net In-Migration Per Annum (p.a.)</b>		-900 p.a. in 2010 increasing to -600 p.a. in 2016 increasing to 100 p.a. in 2020 and 200 p.a. in 2025, constant thereafter	-300 p.a. in 2010 increasing to 0 p.a. in 2020 increasing to 300 p.a. in 2040, constant thereafter
<b>Real GDP Growth Rates</b>	Short-term	IMF estimates*	-0.6% in '13 -2% in '15
	Med.-term	1.25% to 0.5%	1.5%
	Long-term	0.25% after 2040	1.0%
<b>Real Increase in Wages</b>		0.5%	0.75%
<b>Long-term Inflation</b>		2.25%	2.5%

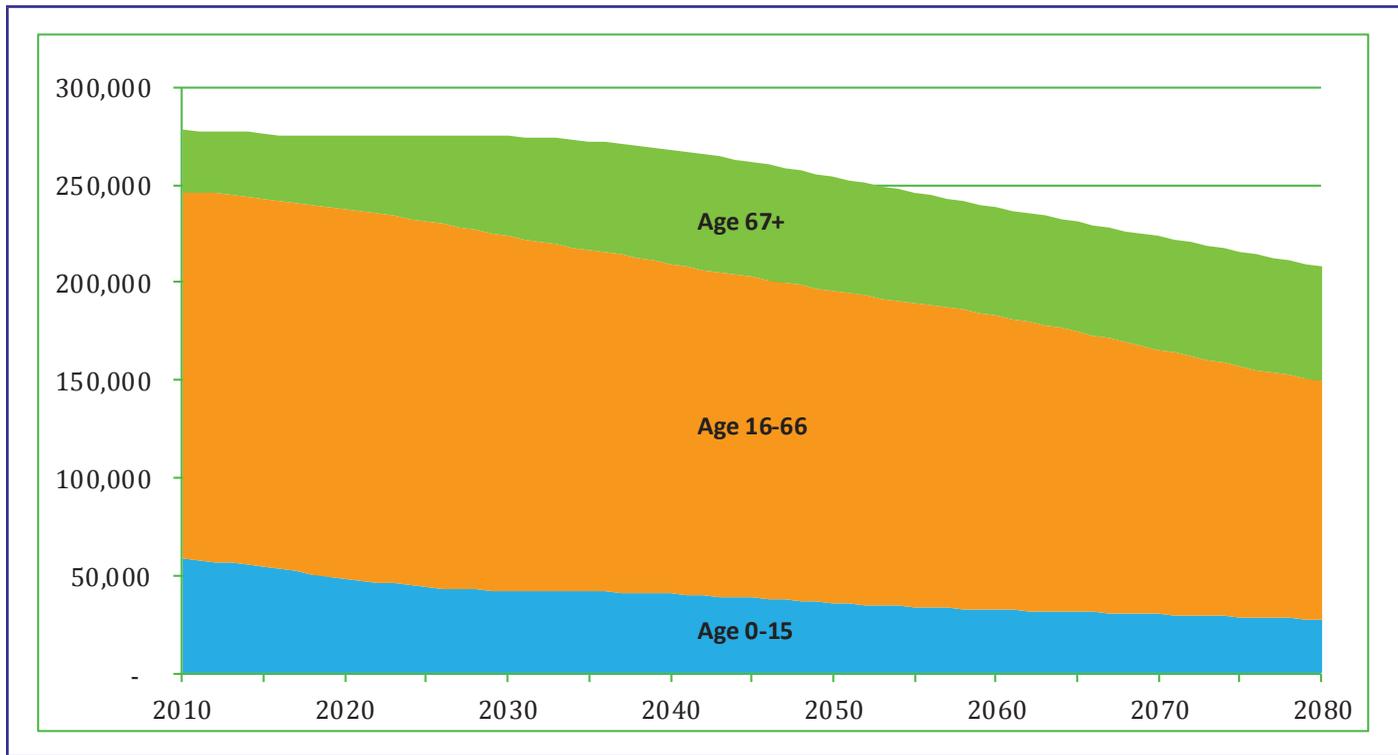
<sup>^</sup> UN mortality improvement rates

\* IMF Projections for each of 2018 to 2023: -0.5%, -0.1%, 0.6%, 1.5%, 1.8%, 1.8%

### 3.1.2 Projection Results

Population estimates in the 2015 Digest of Statistics produced by the Department of Labour placed the Barbados population at 276,300, down from the 2010 Census count of 277,821. With the above assumptions, the population is projected to have declined further but remain relatively unchanged at around 275,000 for about 20 years and then gradually decrease.

**Figure 3.1. Projected Barbados Population (Best-Estimate scenario)**



It should be noted that the projections presented in this report have been prepared for the sole purpose of determining the implications for NIF finances under three different sets of future economic growth and development scenarios.

For the NIF, while projected future population size is important, the age distribution is more critical, as pensions to the elderly represent the bulk of expenditure and contributions will be paid by those in the working-age groups. As shown above, while the number of children and working-age persons is projected to decrease over time, the elderly population is expected to increase. These projections show a slightly smaller and older projected population than presented in the 15th Actuarial Review.

### 3.2 National Insurance Fund Projections

Best Estimate National Insurance Fund demographic and financial projections are modelled using the best-estimate population results, best estimate NIS-specific assumptions and the contribution and benefit provisions that were in place on January 1, 2018, with provisions made for previous reforms that are being phased in gradually.

### 3.2.1 Assumptions

Key National Insurance assumptions are shown below.

**Table 3.2. National Insurance Best Estimate Assumptions**

	<b>16th Actuarial Review</b>	<b>15th Actuarial Review</b>
<b>Avg. Contribution Rate</b>	17.8% in all years	17.8% in all years
<b>Insurable Wage Ceiling increases</b>	Annually by the change in the wage index starting 2018	Annually by the change in the wage index
<b>Short-term Benefits</b>	1.2% of Insurable Earnings	1.65% of Insurable Earnings
<b>Pension Increases</b>	Annually by lower of 3-year average change in prices and wages	Annually by lower of 3-year average change in prices and wages
<b>Yield on Reserves</b>	4.5% in 2018, 3.5% in 2019 to 2021, 5.0% from 2022	5.0% (2.5% above inflation)
<b>Other Income</b>	1.2% of Insurable Earnings	0.9% of Contribution Income
<b>Administrative Expenses</b>	1.2% of Insurable Earnings	1.0% of Insurable Earnings (Additional \$40 million in 2015-17)

With the automatic annual earnings limit and pension adjustments, it is being assumed that the prevailing level of coverage and income security made possible by the earnings ceiling and the minimum pension will be generally maintained throughout the projection period.

### 3.2.2 Projection Results

The charts in Figure 3.2 highlight key projection results of the Best Estimate scenario assuming that the contribution rate is not increased and that there are no changes to benefit rules other than those already legislated. For these projections it is assumed that 40% of contributions receivable at the end of 2018 will not be collected. Reserves considered available for the payment of benefits are estimated at \$5.0 billion and \$4.3 billion at the end of 2017 and 2018, respectively. The effects on the Fund of Government's debt restructuring in October 2018 are factored into the projections.

**Figure 3.2. Projection Results – Best Estimate Scenario**



The key results of these projections are summarised as follows:

1. Expenditure will exceed contribution income in each year.
2. Cash flow deficits (total expenditure greater than total income) will occur in all years except possibly in the two to three years after 2021 when the interest rate on newly issued Series E Government debt increases to 8% in 2022.
3. Reserves are projected to be exhausted in 2051.
4. In 2051 when reserves are exhausted, annual expenditure relative to total insurable wages (pay-as-you-go rate) will be just under 24%. The contribution rate will therefore have to be increased to this level to meet total expenditure.
5. The pay-as-you-go rate will increase to 27% in 2077.
6. The general average premium, or the average level contribution rate required over the next 60 years to fully cover total expenditure during that period, is 24.3%.
7. The number of contributors for each pension in payment is expected to fall from 2.8 in 2017 to 1.9 in 2077.

One key funding objective of the pension reforms made in 2003 was a target reserve- expenditure ratio of 5.0 in 2030. For this Best Estimate scenario, this target will not be met as the projected reserve- expenditure ratio in 2030 is 3.8.

Numerical details of the financial and demographic projections for the Best Estimate scenario are provided in Tables 3.3 to 3.5.

**Table 3.3. Projected Cash Flows & Reserves, Best Estimate Scenario (millions of \$'s)**

Year	Income				Expenditure			Surplus/ (Deficit)	Reserves	
	Contributions	Investment	Other	Total	Benefits	Admin. & Other	Total		End of Year	# of times current year's expenditure
<b>2018</b>	649.7	279.6	3.5	<b>932.8</b>	692.1	955.1	<b>1,647.2</b>	<b>(714.4)</b>	<b>4,287</b>	5.8
<b>2019</b>	598.0	147.5	3.0	<b>748.4</b>	707.7	43.8	<b>751.5</b>	<b>(3.1)</b>	<b>4,284</b>	5.7
<b>2020</b>	607.1	147.0	3.0	<b>757.1</b>	733.8	44.5	<b>778.3</b>	<b>(21.2)</b>	<b>4,263</b>	5.5
<b>2021</b>	626.0	145.9	3.1	<b>775.1</b>	774.1	45.9	<b>820.0</b>	<b>(44.9)</b>	<b>4,218</b>	5.1
<b>2022</b>	649.9	206.0	3.2	<b>859.2</b>	804.9	47.6	<b>852.6</b>	<b>6.6</b>	<b>4,224</b>	5.0
<b>2023</b>	674.4	206.3	3.4	<b>884.0</b>	831.0	49.4	<b>880.4</b>	<b>3.6</b>	<b>4,228</b>	4.8
<b>2027</b>	781.3	205.4	3.9	<b>990.6</b>	942.0	57.3	<b>999.3</b>	<b>(8.7)</b>	<b>4,205</b>	4.2
<b>2037</b>	1,026.6	161.8	5.1	<b>1,193.6</b>	1,227.2	75.2	<b>1,302.5</b>	<b>(108.9)</b>	<b>3,621</b>	2.8
<b>2047</b>	1,313.7	66.9	6.6	<b>1,387.1</b>	1,640.2	96.3	<b>1,736.5</b>	<b>(349.3)</b>	<b>1,343</b>	0.8
<b>2057</b>	1,728.5	(177.7)	8.6	<b>1,559.4</b>	2,248.0	126.7	<b>2,374.6</b>	<b>(815.2)</b>	<b>(4,450)</b>	(1.9)
<b>2067</b>	2,267.6	(718.5)	11.3	<b>1,560.4</b>	3,138.7	166.2	<b>3,304.9</b>	<b>(1,744.4)</b>	<b>(17,205)</b>	(5.2)
<b>2077</b>	2,969.3	(1,815.6)	14.8	<b>1,168.6</b>	4,296.8	217.6	<b>4,514.4</b>	<b>(3,345.8)</b>	<b>(42,929)</b>	(9.5)

*Negative reserves indicate the indebtedness of the Fund and negative investment income is the current cost of servicing that debt.*

**Table 3.4. Projected Benefit Expenditure - Best Estimate (millions of \$'s)**

Year	Pensions, Grants & Benefits						Benefits as a % of:	
	Old Age Cont.	Invalidity	Survivors	Non-Cont. Old Age	Short-term	Employ. Injury	Insurable Wages	GDP
<b>2018</b>	548.4	77.2	27.1	8.8	31.9	10.8	18.5%	7.1%
<b>2019</b>	542.3	81.2	27.5	7.4	37.2	12.0	19.4%	7.3%
<b>2020</b>	564.6	84.5	28.4	6.2	37.8	12.3	19.8%	7.3%
<b>2021</b>	598.1	89.1	29.9	5.2	39.0	12.8	20.2%	7.5%
<b>2022</b>	622.9	92.8	31.2	4.2	40.5	13.3	20.3%	7.4%
<b>2023</b>	643.3	96.1	32.3	3.4	42.0	13.8	20.2%	7.4%
<b>2027</b>	729.3	109.7	37.2	1.3	48.7	15.9	19.7%	7.1%
<b>2037</b>	954.1	139.1	49.5	0.0	63.9	20.6	19.6%	6.6%
<b>2047</b>	1,295.5	176.6	60.1	0.0	81.8	26.2	20.4%	6.7%
<b>2057</b>	1,785.0	246.1	74.0	-	107.7	35.2	21.3%	7.0%
<b>2067</b>	2,520.0	334.0	96.5	-	141.2	46.9	22.7%	7.4%
<b>2077</b>	3,525.3	398.7	128.7	-	184.9	59.1	23.7%	7.7%

*Note: Figures for Old Age Non-contributory pensions are amounts for which NIS is financially obligated.*

**Table 3.5. Projected Contributors & Pensioners at Year-end - Best Estimate**

Year	# of Contributors	# of Pensioners					Total # of Pensioners	Ratio of Contributors to Pensioners#
		Old Age Cont.	Invalidity	Survivors	Non-Cont. Old Age	Death & Disablement		
<b>2018</b>	113,624	30,683	4,515	3,191	2,093	293	<b>40,775</b>	<b>2.8</b>
<b>2019</b>	113,244	30,831	4,679	3,246	1,755	303	<b>40,814</b>	<b>2.8</b>
<b>2020</b>	114,027	31,392	4,741	3,305	1,462	308	<b>41,208</b>	<b>2.8</b>
<b>2021</b>	115,433	31,943	4,795	3,359	1,207	311	<b>41,615</b>	<b>2.8</b>
<b>2022</b>	117,268	32,249	4,839	3,404	985	314	<b>41,791</b>	<b>2.8</b>
<b>2023</b>	119,042	32,489	4,884	3,440	794	317	<b>41,924</b>	<b>2.8</b>
<b>2027</b>	126,297	33,063	5,033	3,550	290	327	<b>42,263</b>	<b>3.0</b>
<b>2037</b>	122,157	33,885	5,065	3,699	3	330	<b>42,983</b>	<b>2.8</b>
<b>2047</b>	115,003	36,329	4,979	3,528	0	323	<b>45,160</b>	<b>2.5</b>
<b>2057</b>	110,606	38,838	5,196	3,342	-	335	<b>47,711</b>	<b>2.3</b>
<b>2067</b>	103,564	41,594	5,146	3,264	-	332	<b>50,336</b>	<b>2.1</b>
<b>2077</b>	94,523	42,798	4,405	3,196	-	287	<b>50,687</b>	<b>1.9</b>

*Note: The number of Old Age Non-contributory pensioners shown are those for whom NIS is financially obligated.*

For national pension systems that are partially funded and designed to be perpetual, costs are usually presented in terms of the pay-as-you-go-rates, which represent annual expenditure as a percentage of covered wages. For private pension plans, however, where full funding is the financing objective, there are other measures of the system's cost and, where applicable, financing shortfall, that may be useful for National Insurance policy makers.

### 3.2.3 General Average Premium

The general average premium is the average level contribution rate required over the next 60 years to fully cover total expenditure during that period. This rate may be looked at as the average long-term cost of the complete National Insurance benefits package. For the Best Estimate projections, the general average premium is 24.3%.

### 3.2.4 Actuarial Balance

Another measure of the financial sustainability of a National Insurance system is called actuarial balance. For a given period, the actuarial balance can be defined as the difference between:

- a) the sum of the beginning reserves and the present value of future contributions (money available to meet expenditure), and
- b) the present value of future expenditure,

divided by the present value of future insurable wages. This formula produces a rate that indicates the adequacy or insufficiency of the present contribution rate for a given period. For the National Insurance Fund, the deficiency expressed in dollars and as a percentage of GDP is shown in Table 3.6.

**Table 3.6. Actuarial Balance 2018 – 2077 (\$'s are in billions)**

	2017 Year-end Reserves <sup>^</sup>	5.0
Plus	PV of Future Contributions	22.3
Minus	PV of Future Expenditure	(30.6)
Equal	PV of Surplus/(Shortfall)	(3.2)
	Actuarial Balance (% of Insurable Earnings)	-2.6%
	Actuarial Balance (% of GDP)	34%

<sup>^</sup> Reserves reduced by 40% of contributions receivable (see Section 3.2.2)

Consistent with previous discussions, the negative actuarial balance indicates that together with reserves, the current contribution rate is insufficient to meet future expenditure for the next 60 years. The shortfall of 2.6% indicates that the average contribution rate would have to be increased to 20.4% for the entire period in order for reserves to last up to 2077.

### 3.3 Comparison with Results of the 15th Actuarial Review

The projection results presented earlier in this chapter differ from those of the 15th Actuarial Review as shown in the following table:

**Table 3.7. Summary Results - 16th Actuarial Review vs 15th Actuarial Review**

	<b>16th Actuarial Review</b>	<b>15th Actuarial Review</b>
Expenditure Exceeds Income	All but 2022 & 2023	2032
Reserves Depleted	2051	2053
General Average Premium	24.3%	25.9%
Pay-as-you-go rate in 2074	26.9%	32.0%

When compared to the 15th Actuarial Review, some results in this Review are better while others are worse.

- Reserves are now projected to be depleted sooner due to the investment losses from GOB's debt restructuring;
- Projected average long-term costs and pay-as-you-go rates are both lower due to more favourable economic forecasts and more NIS contributors given the improved outlook for Barbados following debt restructuring.

## Chapter 4 Alternative Scenarios

Best Estimate projections up to 2077 presented in the previous chapter provide estimates of future National Insurance Fund demographics and finances under best-estimate assumptions. Given the uncertainty in forecasting such a long period, two alternative scenarios that highlight the sensitivity of the results to differences in assumptions regarding future outlook have been performed. These alternative projection sets encompass assumptions that are generally more optimistic and more pessimistic than those of the Best Estimate projections. Since sustainability will likely be more sensitive to economic developments than to NIS-specific factors such as compliance rates and operating costs, the basis for the alternative scenarios focus more on economic growth and employment.

*The Optimistic* scenario represents one with higher economic growth and employment levels while the *Pessimistic* scenario represents a smaller population and fewer workers compared to under the Best Estimate scenario. Following is a summary of the main assumptions for the three projection scenarios. The values for all other assumptions are similar across scenarios.

**Table 4.1. Principal Demographic, Economic & National Insurance Assumptions**

	Pessimistic	Best Estimate	Optimistic
Ultimate Total Fertility Rate (2025)	1.45	1.5	1.55
Mortality Improvements <sup>^</sup>	Medium	Slow	Very Slow
Net (In) Migration Per Annum (p.a.)	50% more when net out migration assumed; 50% less when net in migration assumed	-900 p.a. in 2010 increasing to -600 p.a. in 2016 increasing to 200 p.a. in 2020 and 400 p.a. in 2025, constant thereafter	50% less net out migration assumed; 100% more when net in migration assumed
Ultimate Real GDP Growth Rates (p.a.)	Short-term	IMF est. up to 2024	
	Med.-term	-0.5% each year	2022-39: 1.8% to 1.0%
	Long-term		2040+:0.5%
Real Increase In Wages(p.a.)	0.3%	0.5%	0.7%
Inflation(p.a.)	2.5%	2.25%	2.0%
Contribution Compliance	93%	92%	91%
Long-term Yield on Reserves	4.0%	4.5%	5.0%

<sup>^</sup> UN mortality improvement rates

The main population and National Insurance demographic and financial results of the three projection sets are presented in Figure 4.1 and Table 4.2. As expected, the outlook for National Insurance finances is closely linked to the size and age distribution of the general population and National Insurance performance indicators such as contribution collection rates and yield on investments.

Figure 4.1. Projection Results - All Scenarios

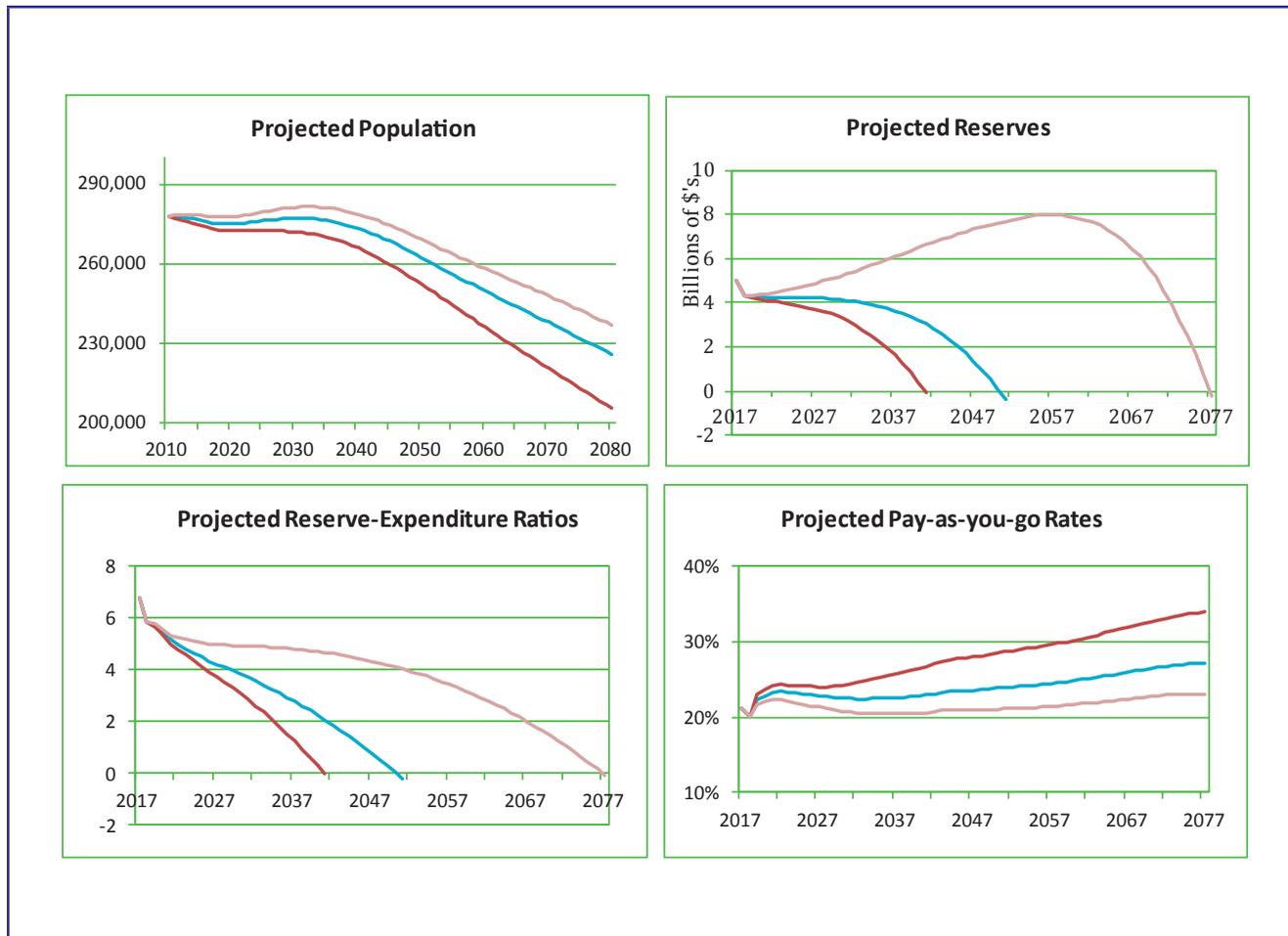


Table 4.2. Summary Results - All Scenarios

	Pessimistic	Best Estimate	Optimistic
Expenditure First Exceeds Total Income	All years	Except 2022-2023	2058
Reserves Depleted	2041	2051	2077
Reserve Expenditure Ratio in 2030	2.6	3.8	4.3
General Average Premium	27.8%	24.3%	22.1%
Pay-as-you-go rate in 2047	28%	24%	21%
Pay-as-you-go rate in 2077	34%	27%	23%
# of Contributors per pensioner - 2077	1.6	1.9	2.1
Actuarial Balance (% of Ins. Earnings)	-5.9%	-2.6%	-0.2%
Actuarial Balance (% of GDP)	-77%	-34%	-2%

## Chapter 5 Sustainability & Reform

The recent debt restructuring by the GOB and loss of \$1.3 billion raises new concerns regarding the sustainability of the National Insurance Fund.

NIF sustainability is inextricably linked to the local economy for contributions and investment returns. Therefore, high public sector debt, large annual deficits and extended periods of low economic growth and reducing employment provide a weak foundation for a sustainable NIS. If the Government's economic reform program results in sustained economic growth with increasing employment and wage levels, the first of the four ingredients considered necessary for long-term NIS success, a "good economy", will be in place. The other three ingredients, over which NIS policymakers have greater control, are:

1. Good design – a system that provides relevant, equitable and affordable benefits that are consistent with prevailing socio-economic and labour market conditions, other employment linked benefits and available technology.
2. Efficient & effective administrative systems – low cost, timely and transparent claims processing and benefit payments.
3. Honest & responsible government (good governance) – proactive and prudent decision making in the best long-term interest of Barbados at all governance levels.

On the heels of the significant loss of assets, there is both a need and an opportunity for the Government, the NIS Board, employers and workers to re-think NIS objectives, design, governance and administration. The one question that may provide most of the necessary answers to the way forward is "What would NIS look like if it were being established for the first time in 2019?"

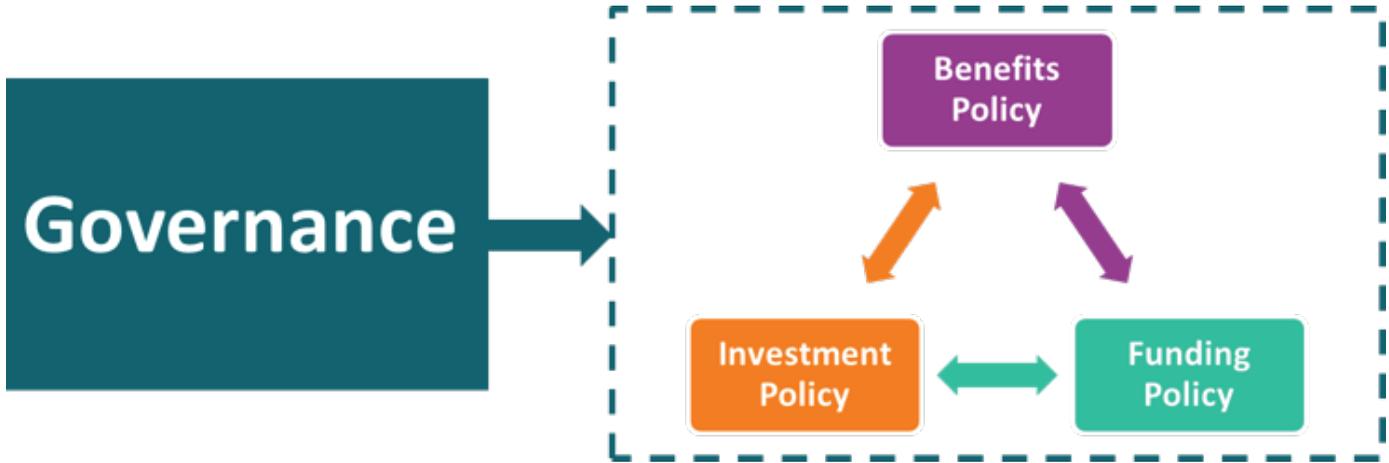
The following table lists key practical aspects of the three NIS-specific ingredients for a sustainable NIS:

**Table 5.1. NIS Design Considerations**

<b>Design Structure</b>	<b>Key Parameters</b>	<b>Governance</b>	<b>Other</b>
<ul style="list-style-type: none"> <li>• Defined benefit or defined contribution</li> <li>• PAYG, partially funded or fully funded</li> <li>• Universal Age pension or non-contributory pension for the poor</li> <li>• How private and public sector pensions fit with NIS and other state benefits</li> </ul>	<ul style="list-style-type: none"> <li>• Target pension replacement rates</li> <li>• Normal pension age</li> <li>• Pension that is age-based or retirement-based</li> <li>• Early retirement factors</li> <li>• Earnings limit</li> <li>• Contribution rate</li> <li>• Automatic pension adjustments</li> </ul>	<ul style="list-style-type: none"> <li>• Autonomous board, government department or combination</li> <li>• Role and powers of the Minister</li> <li>• Skill &amp; competence requirements for executives and board members</li> <li>• Reporting to stakeholders &amp; public</li> </ul>	<ul style="list-style-type: none"> <li>• Investments – who manages, % overseas, % in GOB, etc.</li> <li>• Technology</li> <li>• Automatic adjustment mechanisms</li> <li>• Administration cost targets</li> </ul>

Good governance is key to the long-term success of any institution. For social security systems, good governance not only requires best practices and guidelines for day-to-day operations, but it requires the following three interconnected policies to prevent undesired outcomes and appropriate and timely responses to actual outcomes.

**Figure 5.1. Interconnected Policies for Long-term Sustainability**



**Benefits Policy**

- What are you trying to accomplish?
- What are you trying to avoid?
- If some objectives conflict, what are your priorities?

**Funding Policy**

- Financing strategy with explicit objectives such as maximum desired contribution rate and target funding levels for medium & long terms
- Triggers that determine when & by how much contribution rate is increased

**Investment Policy**

- Target asset mix and rate of return
- Action required when policy violated
- How will conflicting objectives (safety, yield, liquidity, social utility) be balanced?

An Investment Policy is already in place for the National Insurance Fund. However, the actual investment mix has historically not been in line with the acceptable ranges called for in the Policy. (See Section 1.5) The NIS does not have a Benefits Policy or a Funding/Contribution Policy.

The remainder of this chapter contains discussions and recommendations on design and policy features of these three policies geared towards ensuring benefit adequacy and long-term sustainability.

## 5.1. Funding Policy

One of the key decisions made in Pension reform in 2003 was a funding target of reserves being at least 5 times annual expenditure in 2030. Prior to debt restructuring this target appeared attainable. After debt restructuring with current contribution and benefit provisions, it is unlikely that this target is attainable at current contribution rates and benefit provisions.

Until reserves are exhausted, there is no right or wrong time to increase the contribution rate. There are no hard and fast rules to financing social security benefits and so each country must consider its own circumstances when deciding how best to fund future benefits. A formal funding policy that guides future rate increases will help ensure that future increases are gradual and predictable. Such a policy would have medium and/or long-term funding objectives and then guided by actuarial advice, a rate adjustment strategy would be devised.

A new funding policy for the NIF should comprise the following principles.

**Figure 5.2. Funding Policy Priorities & Triggers**

Priority # 1	<ul style="list-style-type: none"><li>• Reserves should not be used to meet expenditure before 20xx.</li></ul>
Priority # 2	<ul style="list-style-type: none"><li>• Reserves should not fall below three (3) times annual expenditure prior to 20yy.</li></ul>
Priority # 3	<ul style="list-style-type: none"><li>• The maximum contribution rate for NIS benefits to meet Priorities 1 &amp; 2 will be x%.</li></ul>
Priority # 4	<ul style="list-style-type: none"><li>• Any new benefits must be fully funded with through additional contributions</li></ul>

The Board, together with stakeholders, should decide on the appropriate years and rates.

Once approved, the ongoing relevance of the policy should be reviewed and possibly updated in each triennial actuarial review.

This policy is being recommended given the following:

1. After 52 years, the pay-as-you-go rate exceeds 20% and investment income is required to meet expenditure.
2. Pay-as-you-go rates are projected to increase close to 23% when the fund reaches 60 years (2027) and continue increasing thereafter due to demographic pressures.

3. Reserves, which at the end of 2018 were just under 6 times annual expenditure, are projected to be at 2 times annual expenditure around 2040 before being depleted in the early 2050's.

Following is a description of the two key elements of the funding policy for the Canada Pension Plan which was adopted as part of major reforms in 1998.

### Figure 5.3 Canada Pension Plan Steady State Funding Policy Elements

1. **Steady-state contribution rate** is defined as the lowest contribution rate that will meet the requirement of ratio of the assets to the following year's expenditures remaining generally constant over the foreseeable future.  
  
If the steady-state rate is higher than the legislated contribution rate (now 9.9%) AND if finance ministers cannot reach agreement on a solution, then:
  - Contribution rate increased by  $\frac{1}{2}$  of excess over three years, subject to maximum increase of 0.2% per year
  - Benefits are frozen
  - At end of three years, the next review is performed to determine financial status of Plan.
- 2 Full funding requires that any changes to the CPP that increase or add new benefits shall be fully funded.

While no contribution rate increase is recommended at this time a comprehensive review of all benefit provisions, especially for Old Age Contributory Pension, should be made. Barbados already has the highest social security contribution rates in the Caribbean; Guyana is next at 14%. Determining how much more workers and employers are willing to contribute will be critical to the reform of NIS benefits.

## 5.2. Benefits Policy

A comprehensive benefits policy should include specific priorities and circumstances to be avoided. It should specifically consider benefit adequacy, equity and affordability. Analysis presented in Chapter 2 showed that benefits are adequate and equitable while projection results presented in Chapter 3 suggest that current benefits may be unaffordable.

Age pensions are generous and so any meaningful change to future pension costs must focus primarily on Age pension provisions. The provisions and specific parameters that would effect reductions in long-term costs are those that would result in reducing future pay-as-you-go rates. The following formula breaks down PAYG costs for pensions into two fractions and four components.

**Figure 5.4. Components of The Age Pension Pay-As-You-Go Rate**

$$\begin{aligned}
 \text{Expenditure as a \% of Insurable Wages (pay-as-you-go rate)} &= \frac{\text{Total Pension Expenditure}}{\text{Total Insurable Wages}} \\
 &= \frac{\# \text{ Pensioners} \times \text{Avg. Pension}}{\# \text{ Contributors} \times \text{Avg. Ins. Wage}} \\
 &= \frac{\# \text{ Pensioners}}{\# \text{ Contributors}} \times \frac{\text{Avg. Pension}}{\text{Avg. Ins. Wage}} \\
 &\qquad \text{Demographic Ratio} \qquad \qquad \text{Replacement Ratio}
 \end{aligned}$$

To reduce future pay-as-you-go rates, one or both of the two ratios (demographic and replacement) would need to be lower than under the status quo scenario. The following table summarises the means by which each ratio could be reduced over time.

**Table 5.2. Options for Reducing Long-term Pension Costs**

	Demographic Ratio	Financial Ratio
Economic growth	√	√
Award pensions at a later age	√	
Award pensions only if retired	√	
Make it more difficult to qualify	√	
Reduce average new pension amount (slower pension accruals, longer period for average wages, career average formula)		√
No, or smaller, pension increases		√

Following is a list of specific reforms that could be made to Old Age Contributory pensions to effect reductions in the demographic and replacement ratios.

**Table 5.3. Options for Reducing Long-term Pension Costs**

Reform Measure	Current Provision	Possible Changes
Award pensions at a later age	<ul style="list-style-type: none"> <li>Age 67 for unreduced pension, age 60 for reduced pension</li> </ul>	<ul style="list-style-type: none"> <li>Up to age 70 for unreduced pension</li> <li>Age 62 for reduced pension and/or larger reduction factors for early take-up</li> </ul>
Award pension only if retired	<ul style="list-style-type: none"> <li>Applies up to age 67</li> </ul>	<ul style="list-style-type: none"> <li>Apply up to age 70 or 72</li> </ul>
Require more contributions to qualify	<ul style="list-style-type: none"> <li>500 contribution weeks (approximately 10 years)</li> </ul>	<ul style="list-style-type: none"> <li>750 weeks (with a non-contributory pension, those who fail to qualify could get a minimal benefit if poor)</li> </ul>
Reduce average new pension amount	<ul style="list-style-type: none"> <li>2% for each of the first 20 years plus 1% per year thereafter, maximum 60% (fully effective 2023)</li> <li>Average of best 5 annual insurable earnings</li> </ul>	<ul style="list-style-type: none"> <li>Revise the accrual rate schedule and/or the maximum pension percentage</li> <li>Use average insurable earnings over more than 5 years, possibly entire career</li> </ul>
No or smaller COLA's	<ul style="list-style-type: none"> <li>Should be every January but not applied in 3 of last 5 years</li> </ul>	<ul style="list-style-type: none"> <li>Once every 2 or 3 years with inflation adjustment for 1 year only</li> <li>No increase in the next 5 years</li> </ul>

Other reform options that may have a smaller impact on future costs should also be considered.

### 5.3. Contingent Benefits and Automatic Adjustment Stabilizers

Recommendations made above, call for individual Benefits and Funding Policies. However, these two policies are interconnected as conflicts will arise when a desired level of benefits results in required contributions that exceed those permitted or desirable by the Funding policy. Two ways of dealing with such conflicting objectives are contingent benefits and automatic adjustment stabilizers. Practical examples of each are shown below.

**Table 5.4. Contingent Benefits and Automatic Adjustment Stabilizers**

Contingent Benefits	Automatic Stabilizers
<ul style="list-style-type: none"> <li>• Pension increases deferred for several years if certain conditions/targets not met</li> <li>• 90% of the regular new pension amount is guaranteed but the remaining 10% is only paid if projections meet certain targets</li> </ul>	<ul style="list-style-type: none"> <li>• If projections fall short of minimum funding levels or required contribution rates exceed set rates, benefits have to be reduced so that objectives met. For example:                             <ul style="list-style-type: none"> <li>- Pensionable age will increase</li> <li>- Negative adjustment for pension amounts for new awards</li> </ul> </li> </ul>

While these examples may seem extreme as they hurt existing pensioners, they provide protection to current contributors who could be forced to pay much high contribution rates or receive substantially lower benefits.

### **5.4. Investment Policy**

A sound governance framework is paramount for the effective and proper investment of social security funds and Investment Policy Statements are designed to guide decision making. For decades the NIF has had a documented investment policy that explicitly covers the area of governance and clearly maps out the operational and oversight responsibilities and duties of all fiduciaries including the Board, Investment Committee, internal and external investment managers. Many decisions over the past fifteen years were made contrary to policy guidelines and external advice, as asset allocations were allowed to remain outside agreed and approved limits. This shows that even with a formally documented policy, that was revised and approved periodically, policymakers may still act in an imprudent manner.

It is now expected that GOB will pay all of its contributions in cash and that it will not be issuing new debt securities. As a result, any surplus cash generated by all Funds will need to be invested in non-government instruments.

Strong demographic factors will reduce the financial rewards of obtaining higher rates of return on investments. As a result, investments should be managed in a prudent manner, focusing primarily on long-term safety and stability, targeting moderate rates of return as opposed to higher returns from riskier investments. While supporting local private sector initiatives could enhance economic growth, the NIF should be cautious about participation in projects where its liquidity needs in the next twenty to thirty years may not be consistent with the other entity's cash flow positions. It should also be noted that when funds are invested locally there is an implicit dependence on the output and productivity of future generations. Therefore, there should be a move to investing a greater portion of the Funds overseas.

As the NIS has experienced for itself, the investment of assets is not without risk. One of the increasing threats to social security funds in the region is the incidence of excessive political interference and influence over where funds are invested. It is important, therefore, that all fiduciaries execute their duties with the highest degree of integrity, care, skill and diligence. All investment opportunities should be made with a high level of scrutiny and due diligence.

Members of the Board and Investment Committee should guard themselves against unwarranted political interference or putting the interest of their trade union/employer partners first. Instead, they should carry out their duties and functions in the best long-term interest of Barbados in line with the National Insurance & Social Security Act and Regulations and the approved Investment Policy.

## 5.5. Administration/Governance

Several administration and governance related challenges that the NIS faces are summarised below.

**Table 5.5. NIS Administrative & Governance Challenges**

Self-employed coverage	<ul style="list-style-type: none"> <li>Fewer than 20% of self-employed persons in Barbados have historically contributed to the NIS. Many of these individuals may not have a secure source of income in old age.</li> </ul>
Administrative Efficiency	<ul style="list-style-type: none"> <li>Lengthy delays in claims adjudication and insufficient communication with insureds and transparency regarding decisions and delays given existing technology.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>Inconsistent and sometimes unreliable financial information and operational performance data available</li> <li>Long delays in the preparation of annual reports and audited financial statements</li> </ul>
Management Skills	<ul style="list-style-type: none"> <li>Limits placed on hiring practices and compensation levels of the public sector restrict NIS' ability to attract needed skills and talent.</li> </ul>
Board Member competencies	<ul style="list-style-type: none"> <li>While the guidelines for Board membership focus primarily on who appoints members (government, employers &amp; workers), the Act is silent on the various business, operations and investment skills and experience that are necessary for the Board to oversee a large, important and sophisticated system such as the NIS.</li> </ul>
Governance	<ul style="list-style-type: none"> <li>While the NIS has never been a financial burden to the GOB, the dual governance structure (operations managed as a government department with Fund managed by a tripartite Board) limits the ability of the Board to effectively implement change and modernise management practices.</li> </ul>

The Board is encouraged to take steps to address each of these issues along with all others that negatively affect service and good governance practices.

# Chapter 6 Unemployment Fund

Unemployment benefits are administered by the National Insurance Board and are paid from the Unemployment Fund. This Fund finances weekly payments to unemployed persons of 60% of average insurable earnings for up to 26 weeks.

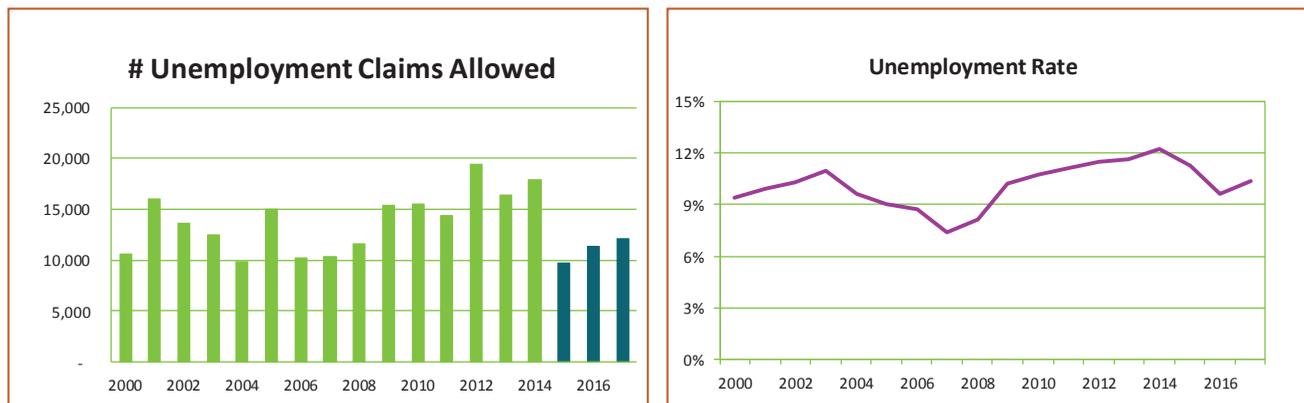
The contribution rate for unemployment benefits has been fixed at 1.5% since 1998. Between January 2015 and December 2018, Severance Fund contributions which are paid by employers only at a rate of ½% of insurable wages, were transferred to the Unemployment Fund.

Details of unemployment benefit provisions may be found in Appendix A.

## 6.1 Unemployment Fund Experience

The following charts show the national unemployment rate from 2000 to 2017 and the total number of unemployment claims approved by the National Insurance Office. Consistent with the global economic crisis and the recession in Barbados, unemployment rates and the number of claims awarded began trending upwards in 2008.

Figure 6.1. Barbados Unemployment Rate & Number Of Unemployed persons



Source: NIS & Barbados Statistical Service, Labour Force Surveys

The following table shows Unemployment Fund experience from 2015 to 2017.

**Table 6.1. Unemployment Fund Experience, 2015 to 2017 (\$'s in millions)**

	<b>2015</b>	<b>2016</b>	<b>2017</b>
Contribution Income	52.4	51.7	51.8
Investment Income	0.0	0.0	0.3
<b>Total Income</b>	<b>52.4</b>	<b>51.7</b>	<b>52.1</b>
Benefits	31.8	30.7	32.8
Administrative Expenses	3.1	2.4	2.4
<b>Total Expenditure</b>	<b>34.9</b>	<b>33.1</b>	<b>35.2</b>
Excess of Income Over Expenditure	17.5	18.6	16.9
Contribution Rate	2.0%	2.0%	2.0%
Benefit Rate (as % of IE)	1.2%	1.2%	1.3%

All contributions due to the Unemployment Fund are not received in cash. Contributions Receivable at the end of 2017 were \$20.6 million and Other Receivables were \$30.9 million. It is uncertain what portion of these amounts will be collected. No estimate of Unemployment benefit payments due for unprocessed claims as of December 2017 is included in Fund financial statements. Cash plus investments in the Unemployment Fund as of December 2017 were \$63.6 million.

## **6.2 Unemployment Fund Investments**

As of December 2017 Unemployment Fund investments totalled \$21.7 million, \$3.3 million in commercial bank deposits and \$18.4 million in Treasury Bills.

## **6.3 Subsequent Events & Experience**

There was no loss of assets of the Unemployment Fund due to Government's October 2018 debt restructuring exercise.

The reallocation of the ½% Severance Fund contribution rate to the Unemployment Fund that started in 2015 was reduced to ¼% for January 2019 to December 2020. Cash plus investments in the Unemployment Fund as of December 2018 were \$61.7 million.

## **6.4 Short-term Unemployment Fund Projections**

To determine the adequacy of the current contribution rate and reserve funds to support future benefit expenditure, 10-year projections of the Unemployment Fund under four different scenarios are presented. Key assumptions for these projections are shown in Table 6.2. Common assumptions for all scenarios are:

- Contribution rate of 1.75% for 2019 to 2020, 1.5% thereafter;
- 80% of contributions are collected in cash;

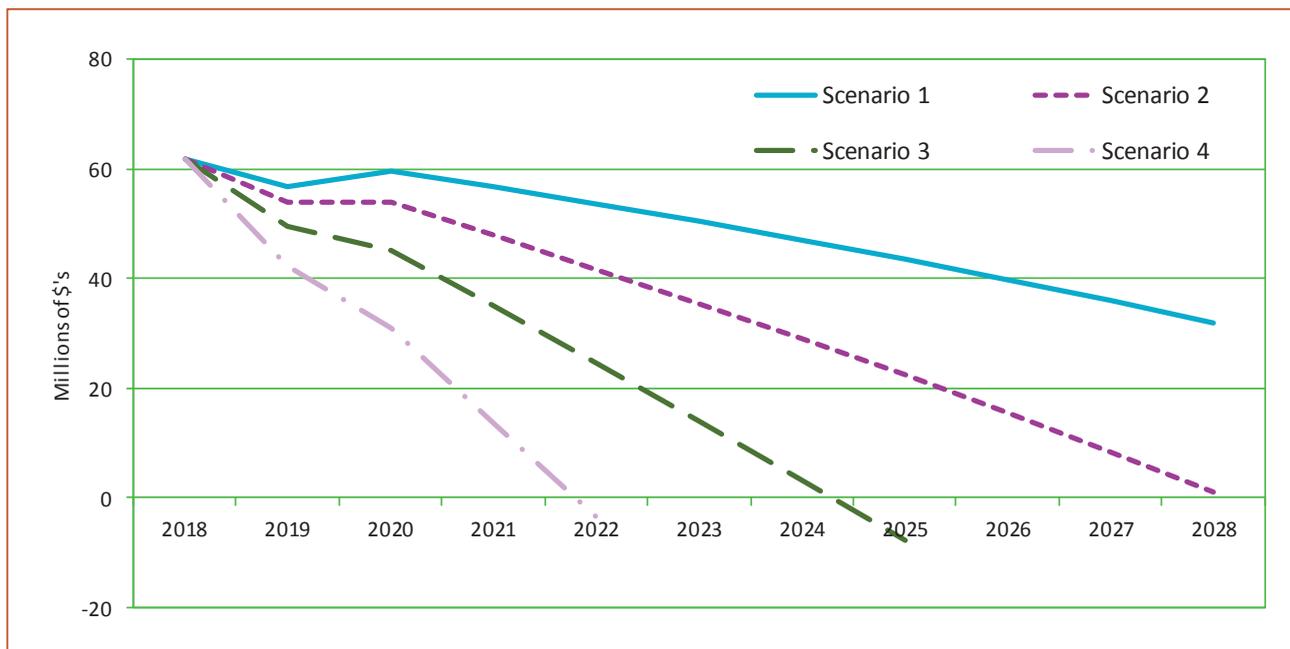
- Yield on investments is 2.0%;
- Administrative costs are 0.13% of insurable earnings;
- Funds available for the payment of benefits as of December 2018 at \$61.7 million.
- An extra \$8 million in backlog claims is paid in 2019

**Table 6.2. Key Assumptions For Unemployment Fund Projections**

Scenario	Increase in Ins. Earnings	Benefits As % of Ins. Earnings
<b>1</b>	2%	1.25%
<b>2</b>	1%	1.35%
<b>3</b>	0%	1.50%
<b>4</b>	-1%	1.75%

Figure 6.2 below illustrates the results of these projections:

**Figure 6.2. Projected Unemployment Fund, 2019 to 2028**



Given that reserves are projected to remain positive for the next 5 years under three of the four scenarios, no increase to the core 1.5% Unemployment Fund contribution rate is required or recommended at this time.

# Chapter 7 The Severance Fund

The National Insurance Board administers the Severance Payments Fund as established under the Severance Payments Act. The Severance Payments Fund provides a 25% refund to employers who make the required severance payments. In cases where the employer refuses to, or is unable to make such payment, the Severance Fund makes the payment directly to the employee and the amount paid is recoverable by the National Insurance Board from the employer. Further details of eligibility conditions and rates of payment can be found in Appendix A.

## 7.1 Severance Fund Experience

Since October 2001 the contribution rate for Severance benefits has been fixed at 0.5% of insurable earnings. This rate is payable by private sector employers only. Since January 2015, Severance Fund contributions have been transferred to the Unemployment Fund. This reallocation of contributions was approved by employers after legal advice indicated that a direct transfer of reserves from the Severance Fund to the Unemployment Fund was not possible.

There were no amendments to Severance payment rules during the review period.

The following table highlights Fund income and expenditure for 2015 to 2017. Delays in the processing of Severance payments have affected the timing of actual payments. Surpluses generated in each year resulted in Severance Fund reserves increasing during the review period.

**Table 7.1. Severance Fund Experience, 2015 to 2017 (\$'s in millions)**

	<b>2015</b>	<b>2016</b>	<b>2017</b>
Contribution Income	1.9	0.0	0.6
Investment Income	10.5	10.5	10.8
<b>Total Income</b>	<b>12.4</b>	<b>10.5</b>	<b>11.4</b>
Net Benefits Paid	2.5	0.9	1.2
Administrative Expenses	0.7	0.7	0.7
<b>Total Expenditure</b>	<b>3.2</b>	<b>1.6</b>	<b>1.9</b>
Excess of Income Over Expenditure	9.2	8.9	9.5

All contributions due to the Severance Fund are not received in cash and amounts paid by the Fund on behalf of the employers and not collected have grown. Cash plus investments in the Severance Fund as of December 2017 were \$220.1 million.

## 7.2 Subsequent Events & Experience

In October 2018, the Government of Barbados, through a debt restructuring exercise, exchanged the portfolio of NIS's debt instruments and arrears owed by the GOB and several SOEs as of October 1, 2018 in return for various series of new GOB debt instruments. For the Severance Fund, Treasury Notes, Debentures and SOE Bonds totaling \$137.5 million were exchanged at a 37.5% discount for 25-year Series E bonds. (See Table 1.8). The reduction in face amount was \$51.6 million.

Several state owned enterprises are making employees redundant and are making claims on the Severance Fund. Nearly \$7 million has been paid thru the first quarter of 2019.

The reallocation of the ½% Severance Fund contribution rate to the Unemployment Fund that started in 2015 was reduced to ¼% for January 2019 to December 2020. The other ¼% is being allocated to the Training Levy.

## 7.3 Severance Fund Investments

The following table shows the asset mix of the Severance Fund as at December 31, 2017 and as October 31, 2018, immediately after the debt exchange.

Table 7.2 Severance Fund Investments, December 31, 2017 and October 2018

	December 2017		October 2018	
	Amount (millions of \$'s)	% of Total	Amount (millions of \$'s)	% of Total
<b>Deposits</b>	8.6	4.7	10.5	7.5
<b>Treasury Bills</b>	34.7	19.0	40.3	28.8
<b>Treasury Notes</b>	22.4	12.2	-	-
<b>Debentures</b>	111.5	60.8	86.0	61.6
<b>Bonds &amp; Loans</b>	5.1	3.3	2.9	2.1
<b>Total</b>	<b>183.3</b>	<b>100.0</b>	<b>139.7</b>	<b>100.0</b>

As shown above, the Severance Fund is approximately 90% invested in Government of Barbados securities.

Unlike the National Insurance Fund, the Severance Fund does not have a written Investment Policy that guides how and where its investments are placed. As the Fund continues to grow without any need for liquid assets, aiming for a higher rate through longer-term securities should be considered. It is therefore recommended that a written investment policy be created and approved at the earliest opportunity.

## 7.4 Future Severance Payments

During the review period the ½% Severance contribution rate paid by employers was reallocated to the Unemployment Fund to shore up its finances. Even without contributions for three years the Severance Fund experienced annual surpluses as investment income on Fund investments exceeded total expenditure.

The issue of low Severance payments and growing reserves during an extended recessionary period was raised in previous actuarial reports. The primary concern remains whether the provisions of the Severance Payments Act, which came into force in 1973, and last amended in 1991, are relevant to the current labour market and economy. It is once again recommended that a comprehensive review of the objectives and key features of the Severance Payments Act be conducted, to determine whether they are relevant to current employment practices and employer behaviour regarding redundancy, and if not, recommend changes.

Legal advisors have opined that moneys held in the Severance Fund cannot be transferred to other NIS administered funds but can only be used for purposes set out in the Act. With appropriate amendments, therefore, new uses for Severance Fund moneys such as those listed below may be added.

- Training institute (virtual or physical) operated by employers that caters to the changing skills needs of the labour market
- Creation and management of a skills bank
- Venture fund for small and medium sized businesses Another option could be to cease contributions to the Fund.

## Chapter 8 Governance

The current NIS governance structure can be described as follows:

- The National Insurance Board (NIB) is a body corporate and reports to Parliament through the Minister responsible for Social Security. The NIB is governed by a 10-member tripartite board. Members of the Board are appointed by the Minister. Generally, control and management of the National Insurance Fund are entrusted to the Board.
- The National Insurance Office, a department of the Civil Service, falls under the control of the Minister. The Director, who is the Chief Executive Officer of the department, is responsible for the day-to-day management of the Office.
- The powers and duties of the Minister and some key functions of the board and the director are outlined in the relevant act and regulations.

With the exception of Jamaica, all other Caribbean national insurance and social security funds are fully administered by statutory bodies. While the Barbados National Insurance Board is a statutory body, its oversight is limited to management of the Fund as the majority of National Insurance Office employees are civil servants and their terms of engagement, salary and benefit structure, recruiting policies etc., are governed by General Orders which are enforced by the Personnel Administration Division. One advantage to this existing structure is the relatively low administrative costs.

Over the past twelve years, the NIS faced major challenges with the installation of a new insurance administration system resulting in service deficiencies, including delays in the payment of benefits. Annual reports of the NIF have not been sent to Parliament since 2011 and audited financial statements have not been finalised since 2009. In 2018, the NIS lost \$1.3 billion in investments following a debt restructuring exercise by the Government. For many years the portion of funds invested in government securities was contrary to advice provided in previous actuarial reviews and the Board's investment policy. This excess was compounded by Government's settlement of contribution arrears by the issuance of Government paper.

In line with recommendations of the 15th Actuarial Review, the Board has established a set of Good Governance Guidelines. This document includes the following:

- (a) Concept of corporate governance
- (b) Role & duties of the Minister
- (c) New Board member orientation
- (d) Powers & responsibilities of Board members
- (e) Terms of reference for the Chairman, Director and several subcommittees
- (f) Code of conduct for Board members
- (g) Policies dealing with Conflict of interest, disclosure of information, confidential information

The Board is commended for putting this document into place and is encouraged to ensure that it is regularly used and followed.

Specific recommendations for a new or revised governance structure are beyond the scope of this review. However, the major investment loss in 2018 and performance deficiencies in recent years are sufficient for us to again recommend that an independent study on the most appropriate governance structure for the NIS be conducted. The review should also focus on all governance arrangements that will ensure the effective and efficient management of the NIS.

# Statement of Actuarial Opinion

It is our opinion that for this report of the 16th Actuarial Review of the National Insurance, Unemployment and Severance Funds:

- the data on which the projections and analysis are based are sufficient and reliable;
- the assumptions used are, in the aggregate, reasonable and appropriate, and
- the methodology employed is appropriate and consistent with sound actuarial principles.

This report has been prepared in accordance with the Caribbean Actuarial Association Actuarial Practice Standard #3 for Social Security Programs.

## Morneau Shepell Ltd.



Derek Osborne,  
Vice President



FSA Marcia Tam-Marks, FSA  
Vice President

October 25th, 2019

# References

14th and 15th Actuarial Review of the National Insurance, Unemployment & Severance Funds

Annual Reports & Financial Statements of the National Insurance, Unemployment & Severance Funds

Barbados, Selected issues, International Monetary Fund, 2017

Barbados: 2017 Article IV Report, IMF, 2017 and other reports and statements thru June 2019 National Insurance & Social Security Act & Regulations

Various reports and publications by the Barbados Statistical Service and Central Bank of Barbados

2015 Digest of Statistics as at November 2016, Ministry of Labour, Social Security and Human Resources Development.

# Appendix A Summary of Contribution & Benefit Provisions

## A.1 Funds, Benefits, Insured Persons & Contribution Rates

The National Insurance Board, through three separate funds, provides for the following benefits and assistances:

1. National Insurance Fund
  - Long-term benefits: Old-age, Invalidity and Survivors' Benefits.
  - Short-term benefits: Sickness & Maternity Benefits, Maternity & Funeral Grants.
  - Employment Injury Benefits: Injury Benefit, Disablement Benefit, Medical Expenses, Death Benefit and Funeral Grant.
  - Non-contributory pensions: Old-Age (for existing pensioners at December 31, 1999)
2. Unemployment Fund
  - Unemployment Benefit
3. Severance Payment Fund
  - Employer Payments
  - Rebates

Employed and self-employed persons between 16 and pensionable age (66½ years effective January 2014 and 67 effective January 2018) are covered for the above contingencies as follows:

- Employed persons in the private sector: All contingencies.
- Temporary government employees: All contingencies except severance.
- Permanent government employees: All contingencies, except sickness, unemployment and severance.
- Self-employed persons: All contingencies except employment injury benefits, unemployment and severance.

Employed persons under 16 or over age normal pension age are covered for employment injury benefits only.

Earnings used for determining contributions and benefits are limited to a weekly or monthly ceiling. If earnings are below \$91 per month, no contributions are payable. Earnings include basic salary and all other remuneration in cash or kind such as bonuses.

Starting 2005 the earnings ceiling has been indexed annually in line with changes in average wages. The monthly ceiling on insurable wages has increased since 1967 as follows:

Period	Weekly	Monthly	Period	Weekly	Monthly
<b>1967- 1973</b>	\$50		<b>2008</b>	\$819	\$3,550
<b>1974-1977</b>	\$130		<b>2009</b>	\$858	\$3,720
<b>1978-1981</b>	\$230	\$1,000	<b>2010</b>	\$900	\$3,900
<b>1982-1984</b>	\$506	\$2,200	<b>2011</b>	\$944	\$4,090
<b>1984-1986</b>	\$598	\$2,600	<b>2012</b>	\$965	\$4,180
<b>1987-1991</b>	\$600	\$2,600	<b>2013</b>	\$985	\$4,270
<b>1991-2004</b>	\$715	\$3,130	<b>2014-16</b>	\$1,006	\$4,360
<b>2005</b>	\$736	\$3,190	<b>2017-18</b>	\$1,073	\$4,650
<b>2006</b>	\$759	\$3,290	<b>2019</b>	\$1,112	\$4,820
<b>2007</b>	\$782	\$3,390			

Contributions are computed as a percentage of insurable earnings. Rates of contributions vary according to the type of employment. The contribution rates applicable to the four main categories of contributors in effect in January 2017 are shown below.

	National Insurance & Non-Contributory Pensions		Unemployment Benefits		Severance Benefits	
	E'ee	E'er	E'ee	E'er	E'ee	E'er
<b>Employed Persons</b>	8.75%	9.5%	0.75%	0.75%	-	0.5%
<b>Temporary Government</b>	8.75%	9.5%	0.75%	0.75%	-	-
<b>Permanent Government</b>	8.20%	8.95%	-	-	-	-
<b>Self-employed*</b>	15.5%		-	-	-	-

\* Self-employed are not covered for Employment Injury, Unemployment nor Severance benefits.

The average contribution rate payable in 2017 for National Insurance and Non-Contributory pensions is approximately 17.8% of average insurable wages.

## **A.2 Summary of Benefits Provisions**

### **A.2.1. LONG-TERM BENEFITS**

#### **(a) OLD-AGE CONTRIBUTORY PENSION**

*Contribution Requirement:* 500 paid or credited weekly contributions of which 150 must be paid.

*Age Requirement: Full Pension:* Normal pension age: 66½ from 2017 to 2018 and 67 thereafter. Pensions payable at normal pension age are not dependent on retirement from the workforce.

*Reduced Pension:* 60 years to normal pension age. This pension is dependent on retirement from the workforce.

*Increased pension:* From normal pension age to age 70.

Amount of Benefit:

Old Basis: 40% of average earnings over the best five years, plus 1% of total insurable earnings on which contributions were based subsequent to the first 500 weekly contributions. These rates apply to persons attaining normal pension age up to 2015.

New Basis: Effective 2023, pension accrual rates will be 2% for each 50 weekly contributions up to 1,000 weekly contributions plus 1.25% for each further 50 weekly contributions up to a maximum of 60%.

Transition: For persons attaining normal pension age between 2016 and 2022, 50% of the benefit will be based on the Old Basis and 50% on the New Basis.

Pensions are reduced by ½% for each month the age at award is less than normal pension age and increased by ½% for each month the age at award exceeds normal pension age up to age 70.

*Maximum Pension:* 60% of average earnings over the best five years.

*Minimum Pension:* The listed minimum pension is \$190.00 per week. The minimum pension and all pensions will increase each year in accordance with the lesser of 3-year average wage increases and 3-year average price inflation.

#### **(b) OLD-AGE CONTRIBUTORY GRANT**

*Contribution Requirement:* 50 paid or credited weekly contributions.

*Eligibility:* Other than for the contribution requirement, the applicant must be eligible for Old- Age Contributory Pension.

*Amount of Benefit:* 6 times average weekly insurable earnings for each 50 weekly contributions paid or credited. This amount is paid as a lump sum.

(c) INVALIDITY PENSION

*Contribution Requirement:* 150 paid weekly contributions.

*Eligibility:* The applicant has exhausted the maximum period for sickness benefit and is permanently incapable of work, and less than normal pension age.

*Amount of Benefit:* 40% of average earnings over the best three years, plus 1% of total insurable earnings on which contributions were based subsequent to the first 500 weekly contributions.

*Duration Of Pension:* Payable for as long as invalidity continues or until normal pension age when converted to an old-age contributory pension.

*Minimum Pension:* As for Old-Age pension.

(d) INVALIDITY GRANT

*Contribution Requirement:* 50 paid or credited weekly contributions.

*Eligibility:* Other than for the contribution requirement, the applicant must be eligible for invalidity pension.

*Amount of Benefit:* Same as Old Age Contributory Grant.

(e) SURVIVORS' PENSION

*Contribution Requirement:* The deceased, at time of death, was receiving or was qualified to receive an invalidity or old-age contributory pension.

*Eligibility:* Widow or widower married for at least three years (includes common-law spouse) or a child who is under age 16, up to age 25 if in full-time education or invalid.

*Amount of Benefit:* The proportion of Invalidity pension shown below:

*Widow or widower:* 50% if age 50 or over and married for at least 3 years; 33⅓% if between 45 and 50 and married for at least 3 years;

Child: 16 2/3% - up to 3 children at any one time if a spouse is also entitled;

Child (orphan or disabled): 33⅓%;

*Maximum benefit:* 100%

*Duration of Benefit:*

- Widow or widower age 45 or over at time of death and married for 3 years, or disabled: life pension or until the beneficiary is entitled to a larger Old Age pension in his/her own right.
- For a widow or widower under age 45 and not disabled: one year.
- For children, age 16 or 25 if in full-time education, for as long as invalidity continues, if invalid.

(f) SURVIVORS' GRANT

Contribution Requirement: 50 contributions paid or credited by the deceased insured person.

Eligibility: Other than for the contribution requirement of the deceased, the applicant must be eligible for survivors' pension.

Amount of Benefit: Same as Old Age Contributory or Invalidity Grant.

(g) NON-CONTRIBUTORY OLD-AGE PENSION

Eligibility: Current normal pension age or over, or in the case of a blind person or a deaf mute aged 18 or over. Applicant must also be a Barbados citizen or a permanent resident who has lived in Barbados for a period of:

For a citizen: 12 years since attaining age 40 or an aggregate of 20 years since attaining age 18;

For a permanent resident: 15 years since attaining age 40 or an aggregate of 20 years since attaining age 18.

Persons who refused or failed to be insured as self-employed do not qualify for non- contributory pension.

Amount of Benefit: \$155 per week. NIS is only responsible for the first \$74.75 per week as since 1998, all increases above this level and the cost associated with new awards after 1999 are being met by the Consolidated Fund.

## A.2.2. SHORT-TERM BENEFITS

(a) SICKNESS BENEFIT

*Contribution Requirements:*

- 7 weekly paid or credited contributions in the quarter but one before the quarter in which the person became ill and either,
  - i. 39 weekly paid or credited contributions in the four quarters ending with the quarter but one before the quarter in which the person became ill, or
  - ii. Person is engaged in employment immediately before becoming ill.

Self-employed persons must satisfy criteria (i).

Waiting Period: 3 days. If incapacity lasts for two weeks or more, benefit is payable from the first day. Two periods of illness separated by less than thirteen weeks are treated as one.

Amount Of Benefit: 66 2/3% of average weekly insurable earnings during the quarter but one before the quarter in which the person became ill. Benefit paid on the basis of six days per week.

Duration of Benefit: Up to 26 weeks, plus an additional 26 weeks if at least 150 weekly contributions were paid and 75 contributions paid or credited in the preceding three contribution years.

(b) MATERNITY BENEFIT

*Contribution Requirement:*

For an employed person, insured for at least 26 weeks, and paid at least 16 contributions in the two quarters but one before the quarter the benefit becomes payable.

For a self-employed person, not less than 39 contributions should have been paid or credited in the four quarters ending with the quarter but one before the quarter benefit becomes payable, and not less than 16 contributions should have been paid in two quarters but one before the quarter the benefit becomes payable.

Amount of Benefit: 100% of average weekly insurable earnings over the two quarters but one before benefit becomes payable. Benefit is paid on the basis of six days per week.

Duration of Benefit: Up to 12 weeks.

(c) MATERNITY GRANT

*Eligibility:* Payable to a woman who does not satisfy the contribution requirement for maternity benefit but whose spouse has paid the number of contributions that would have enabled the woman to qualify for maternity benefit had they been paid by her.

Amount of Grant: \$1,220 effective January 2017 to December 2017. This amount will increase each year in accordance with the lesser of 3-year average wage increases and 3-year average price inflation.

(d) FUNERAL GRANT

*Eligibility:* Insured person had made at least 50 paid contributions, or if fewer, would have been entitled to either of sickness or maternity. A grant is also payable in respect of the death of the spouse of an insured in respect of whom a grant would have been payable had he/she died.

Amount of Grant: \$2,120 effective January 2017 to December 2017. This amount will increase each year in accordance with the lesser of 3-year average wage increases and 3-year average price inflation.

### **A.2.3. EMPLOYMENT INJURY BENEFITS**

(a) INJURY BENEFIT

*Eligibility:* Incapable of work as a result of an accident arising out of insured employment, or as a result of a prescribed disease.

Amount Of Benefit: 90% of average insurable earnings in the quarter but one before quarter in which accident or disease occurred. (If past employment is for a shorter period, the average insurable earnings of the last 13 weeks, or if less, of someone in similar employment, will be used.)

Duration of Benefit: 52 weeks.

Waiting Period: 3 days. If incapacity lasts for two weeks or more, benefit is payable from the first day. Two periods of incapacity separated by less than eight weeks are treated as one.

(b) DISABLEMENT BENEFIT

*Eligibility:* Disablement resulting from an accident at work or a prescribed disease.

Waiting Period: If injury benefit is awarded, the period of payment of injury benefit.

Amount of Benefit: The payment of a pension or a grant is based on the percentage loss of faculty suffered.

- If degree of disablement is less than 30%, a grant equal to 365 times the weekly benefit rate times the degree of disablement is paid.
- If degree of disablement is 30% or more, a weekly benefit of the injury benefit amount times the degree of disablement is paid.
- In addition, 50% of disablement pension may be paid if the person requires constant help.

(c) DEATH BENEFIT

*Eligibility:* Dependants as defined for survivors' benefit, but other persons who were dependent upon the earnings of the deceased may also qualify.

Amount of Benefit: Proportion of disablement pension - same percentage as for Survivors benefits. (See A.2.1(e)) Other dependants receive 16 2/3%.

(d) MEDICAL EXPENSES

Expenses Covered:

- Medical, surgical, dental and hospital treatment, skilled nursing services and supply of medicines.
- Supply and maintenance of artificial limbs, dentures, spectacles and other apparatus
- Travelling expenses to obtain any of the above.

(e) EMPLOYMENT INJURY FUNERAL GRANT

Condition of Payment: Death of insured must be related to employment. (Only one funeral grant is payable.)

## A.2.4 UNEMPLOYMENT BENEFITS

*Contribution Requirement:*

- Insured for at least 52 weeks.
- 20 weekly contributions paid or credited in three consecutive quarters ending with the quarter but one before that in which unemployment began.

- 7 weekly contributions paid or credited in the quarter but one before that in which unemployment began.

Amount of Benefit: 60% of average insurable earnings during the quarter but one before that in which unemployment began.

Waiting Period: 3 days. If unemployment lasts for two weeks or more, benefit is payable from the first day. Two periods of unemployment separated by less than thirteen weeks are treated as one.

Duration of Benefit: 26 weeks of continuous unemployment, or (if different periods of unemployment occurred) a maximum of 26 weeks in the last year. Between August 2010 and June 2012 the maximum duration was 40 weeks.

### **A.2.5. SEVERANCE PAYMENTS**

The Severance Payments Scheme provides for the payment of compensation to employees who are dismissed by reason of redundancy or natural disaster or who terminate the contract of employment after a period of lay-off or short-time. Under the scheme:

- The severance payment is payable to the employee by the employer,
- If the employer refuses or is unable to make such payment the Severance Fund makes the payment to the employee; (the payment is then recoverable by the National Insurance Board from the employer)
- An employer who pays the employee a severance payment in accordance with the Severance Payments Act is entitled to a rebate of 25% of the payment from the Severance Fund.

Employees aged 16 to normal pension age are covered for Severance payments with the following exceptions:

- persons employed in the Public Service, by any Statutory Board or in employment that is pensionable under any enactment;
- share fishermen;
- persons employed by their husbands or wives;
- domestic servants who are closely related to their employers;
- partners, independent contractors and freelance agents.

Eligibility: The employee must have completed 104 continuous weeks of employment with the same employer.

*Amount of Benefit:* 25% of benefits in line with the scale shown below are refunded to the employer:

- 2.5 weeks basic pay for each year worked, up to 10 years;
- 3 weeks basic pay for each year worked between 10 and 20 years;
- 3.5 weeks basic pay for each year worked between 20 and 33 years.

## Appendix B Methodology, Data & Assumptions

This actuarial review makes use of the comprehensive methodology developed at the Financial and Actuarial Service of the ILO (ILO FACTS) for reviewing the long-term actuarial and financial status of a national pension scheme. The review has been undertaken by modifying the generic version of the ILO modelling tools to fit the specific case of Barbados and the National Insurance Fund. These modelling tools include population, economic, labour force, wage, long-term benefits and short-term benefits models.

The actuarial valuation begins with a projection of Barbados' future demographic and economic environment. Next, projection factors specifically related to National Insurance are determined and used in combination with the demographic/economic framework to estimate future cash flows and reserves. Assumption selection takes into account both recent experience and future expectations, with emphasis placed on long-term trends rather than giving undue weight to recent experience. Projections have been made under three assumption sets for which the demographic and economic assumptions vary.

### B.1 Modelling the Demographic & Economic Developments

The general Barbados population has been projected beginning with totals obtained from the 2010 national census and by applying appropriate mortality, fertility and migration assumptions. The total fertility rate is assumed to be 1.45 in 2017 remaining at that level in the Pessimistic scenario. For the Best Estimate and Optimistic scenarios, total fertility rates are assumed to gradually increase to 1.5 and 1.55, respectively, in 2025. Table B.1 shows ultimate age-specific and total fertility rates.

Table B.1. Age-Specific & Total Fertility Rates

Age Group	2017	Ultimate Fertility Rates		
		Optimistic	Best Estimate	Pessimistic
15 - 19	0.040	0.042	0.041	0.039
20 - 24	0.075	0.080	0.077	0.074
25 - 29	0.069	0.074	0.071	0.069
30 - 34	0.065	0.069	0.067	0.064
35 - 39	0.037	0.039	0.038	0.036
40 - 44	0.011	0.011	0.011	0.010
<b>TFR</b>	<b>1.45</b>	<b>1.55</b>	<b>1.50</b>	<b>1.45</b>

Mortality rates have been determined using United Nations life tables for Latin America. These rates have been adjusted to model closely the actual number of deaths in Barbados from 2010 to 2017. Improvements in life expectancy for the Best Estimate scenario have been assumed to follow the “slow” rate as established by the United Nations with a “medium” rate assumed for the Pessimistic scenario and “very slow” for the Optimistic scenario. Sample mortality rates for the Best Estimate scenario and the life expectancies at birth and at age 67 for sample years are provided in Table B.2.

**Table B.2. Sample Mortality Rates & Life Expectancies**

Age	Males			Females		
	2017	2047	2077	2017	2047	2077
<b>0</b>	0.0048	0.0037	0.0047	0.0060	0.0037	0.0031
<b>5</b>	0.0003	0.0001	0.0001	0.0003	0.0002	0.0000
<b>15</b>	0.0003	0.0002	0.0001	0.0002	0.0001	0.0001
<b>25</b>	0.0010	0.0008	0.0004	0.0004	0.0003	0.0002
<b>35</b>	0.0010	0.0008	0.0005	0.0007	0.0005	0.0003
<b>45</b>	0.0023	0.0017	0.0015	0.0016	0.0011	0.0008
<b>55</b>	0.0061	0.0048	0.0041	0.0038	0.0027	0.0020
<b>65</b>	0.0151	0.0110	0.0096	0.0094	0.0062	0.0044
<b>75</b>	0.0429	0.0324	0.0267	0.0300	0.0204	0.0150
<b>85</b>	0.1231	0.1063	0.0794	0.1011	0.0812	0.0644
<b>95</b>	0.2807	0.2645	0.2238	0.2575	0.2332	0.2076
<b>Life Expectancy at:</b>						
<b>Birth</b>	<b>76.5</b>	<b>78.3</b>	<b>80.0</b>	<b>79.8</b>	<b>81.7</b>	<b>83.5</b>
<b>Age 67</b>	<b>15.1</b>	<b>16.2</b>	<b>17.3</b>	<b>17.0</b>	<b>18.2</b>	<b>19.4</b>

**Life Expectancies At Age 67**

	2017	2077		
		Optimistic	Best Estimate	Pessimistic
<b>Male</b>	15.1	16.1	17.3	18.4
<b>Female</b>	17.0	18.1	19.4	20.9

Net migration (in minus out) for each scenario and 10-year age group is shown below for years 2017 and 2040.

**Table B.3. Net Migration**

Age	2015			2040+		
	Optimistic	<i>Best Estimate</i>	Pessimistic	Optimistic	<i>Best Estimate</i>	Pessimistic
<b>0 - 9</b>	(15)	(34)	(55)	42	34	17
<b>10 - 19</b>	(17)	(38)	(61)	47	38	19
<b>20 - 29</b>	(94)	(215)	(349)	268	215	107
<b>30 - 39</b>	(44)	(100)	(163)	125	100	50
<b>40 - 49</b>	(8)	(18)	(29)	23	18	9
<b>50 - 59</b>	0	0	1	(0)	(0)	(0)
<b>60 - 69</b>	1	2	4	(3)	(2)	(1)
<b>70+</b>	1	2	3	(2)	(2)	(1)
<b>All Ages</b>	<b>(175)</b>	<b>(400)</b>	<b>(650)</b>	<b>500</b>	<b>400</b>	<b>200</b>

The projection of the labour force, i.e. the number of people available for work, is obtained by applying assumed labour force participation rates to the projected number of persons in the total population. Over the first 20 years age-specific labour force participation rates for females are assumed to increase by 3%. Further, for both males and females for ages above 59, participation rates are assumed to gradually approach the rates that in 2017 apply to persons one year younger. Table B.3 below shows the assumed age-specific labour force participation rates in 2017 and 2071. Between these two years, rates are assumed to change linearly.

**Table B.4. Age-Specific & Total Labour Force Participation Rates**

Age	Males		Females		Year	Males	Females
	2017	2077	2017	2077			
<b>17</b>	27%	27%	21%	21%			
<b>22</b>	76%	76%	70%	72%	<b>2014</b>	76%	70%
<b>27</b>	90%	90%	87%	89%	<b>2024</b>	76%	70%
<b>32</b>	90%	90%	88%	90%			
<b>37</b>	93%	93%	88%	90%	<b>2034</b>	78%	72%
<b>42</b>	91%	91%	88%	90%	<b>2044</b>	78%	72%
<b>47</b>	91%	91%	87%	89%	<b>2054</b>	78%	72%
<b>52</b>	89%	89%	81%	83%			
<b>57</b>	84%	84%	70%	72%	<b>2064</b>	78%	71%
<b>62</b>	73%	75%	54%	59%	<b>2074</b>	77%	71%
<b>67</b>	18%	48%	10%	36%			

The projected real GDP divided by the projected labour productivity per worker gives the number of employed persons required to produce total output. Unemployment is then measured as the difference between the projected labour force and employment.

Estimates of increases in the total wages as well as the average wage earned are required. Annual average real wage increases are assumed equal 0.3%, 0.5% and 0.7% for the Pessimistic, Best Estimate and Optimistic scenarios, respectively. The inflation assumption affects nominal average wage increases. Actual projection assumptions may be found in Table 4.1.

## **B.2 Projection of National Insurance Income & Expenditure**

This actuarial review addresses all National Insurance Fund revenue and expenditure items. For Short-term and Employment Injury benefits, income and expenditure are projected as a percentage of insurable earnings. Projections of pensions are performed following a year-by-year cohort methodology. For each year up to 2077, the number of contributors and pensioners, and the dollar value of contributions, benefits and administrative expenditure, is estimated.

Once the projections of the insured (covered) population, as described in the previous section, are complete, contribution income is then determined from the projected total insurable earnings, the contribution rate and contribution density. Contribution density refers to the average number of weeks of contributions persons make during a year.

Benefit amounts are obtained through contingency factors based primarily on plan experience and applied to the population entitled to benefits. Investment income is based on the assumed yield on the beginning-of-year reserve and net cash flow in the year. National Insurance's administrative expenses are modelled as a percentage of insurable earnings. Finally, the end-of-year reserve is the beginning-of-year reserve plus the net result of cash inflow and outflow.

## **B.3 National Insurance Population Data and Assumptions**

The data required for the valuation of the National Insurance Fund is extensive. As of December 31st, 2017, required data includes the insured population by active and inactive status, the distribution of insurable wages among contributors, the distribution of paid and credited contributions and pensions in payment, all segregated by age and sex.

Scheme specific assumptions such as the incidence of invalidity, the distribution of retirement by age, density and collection of contributions, are determined with reference to the application of the Scheme's provisions and historical experience.

Projecting investment income requires information of the existing assets at the valuation date and past performance of each class. Future expectations of changes in asset mix and expected rates of return on each asset type together allow for long-term rate of return expectations.

Details of National Insurance specific input data and the key assumptions used in this report are provided in tables B.5 through B.9.

Table B.5. 2017 Active Insured Population, Earnings & Past Credits

Age	# of Active Insureds		Average Monthly Insurable Earnings		Average # of Years of Past Credits	
	Male	Female	Male	Female	Male	Female
<b>15 - 19</b>	1,262	1,178	1,221	1,006	1.2	1.1
<b>20 - 24</b>	4,486	4,929	1,756	1,585	4.1	3.9
<b>25 - 29</b>	5,976	6,990	2,380	2,240	7.8	7.6
<b>30 - 34</b>	5,975	7,304	2,796	2,736	11.7	11.5
<b>35 - 39</b>	5,647	7,309	3,003	2,893	15.8	15.5
<b>40 - 44</b>	5,723	7,519	3,066	2,889	20.0	19.6
<b>45 - 49</b>	5,845	7,567	3,074	2,824	24.2	23.7
<b>50 - 54</b>	5,892	7,528	3,104	2,744	28.4	27.9
<b>55 - 59</b>	5,621	6,999	3,128	2,685	32.7	32.1
<b>60 - 64</b>	4,189	4,798	3,043	2,496	34.9	34.2
<b>65+</b>	1,428	1,529	2,763	2,110	35.0	34.3
<b>All Ages</b>	<b>52,044</b>	<b>63,650</b>	<b>2,794</b>	<b>2,581</b>	<b>18.8</b>	<b>18.8</b>

Table B.6. Pensions in Payment - December 2017

Age	Old-Age Benefit		Invalidity Benefit		Survivors Benefits		Disablement & Death Benefits		Non-Contributory	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
<b>0 - 4</b>	-	-	-	-	12	11	-	-	-	-
<b>5 - 9</b>	-	-	-	-	68	46	2	-	-	-
<b>10 - 14</b>	-	-	-	-	157	152	1	2	-	-
<b>15 - 19</b>	-	-	-	-	121	124	1	1	-	-
<b>20 - 24</b>	-	-	-	-	27	9	-	-	-	-
<b>25 - 29</b>	-	-	2	-	4	2	4	-	-	-
<b>30 - 34</b>	-	-	17	14	3	5	1	-	-	-
<b>35 - 39</b>	-	-	41	49	1	3	3	2	-	-
<b>40 - 44</b>	-	-	76	92	3	8	8	5	-	-
<b>45 - 49</b>	-	-	129	151	6	22	14	8	-	-
<b>50 - 54</b>	-	-	260	272	43	136	23	7	-	-
<b>55 - 59</b>	-	-	472	525	50	252	31	27	-	-
<b>60 - 64</b>	879	842	672	861	65	324	43	23	-	-
<b>65 - 69</b>	4,410	4,627	-	-	41	305	20	15	-	-
<b>70 - 74</b>	4,311	4,281	-	-	24	264	7	7	-	-
<b>75 - 79</b>	2,416	2,601	-	-	13	254	3	8	221	771
<b>80 - 84</b>	1,635	1,903	-	-	17	252	5	6	159	672
<b>85 - 89</b>	817	1,042	-	-	11	185	1	1	64	387
<b>90 - 94</b>	304	471	-	-	7	83	2	-	19	132
<b>95 - 99</b>	81	148	-	-	1	14	-	-	7	31
<b>100+</b>	12	33	-	-	-	4	-	-	1	3
<b># of Pensioners</b>	<b>14,865</b>	<b>15,948</b>	<b>1,669</b>	<b>1,964</b>	<b>674</b>	<b>2,455</b>	<b>169</b>	<b>112</b>	<b>471</b>	<b>1,996</b>
<b>Avg. Monthly Pension</b>	<b>\$1,401</b>	<b>\$1,225</b>	<b>\$1,342</b>	<b>\$1,200</b>	<b>\$437</b>	<b>\$697</b>	<b>\$950</b>	<b>\$763</b>	<b>\$324</b>	<b>\$324</b>

Note: The average amount for Non-contributory pensions is the amount payable from the NIF.

The following table shows assumed density factors, or the average portion of the year for which contributions are made. These rates are assumed to remain constant for all years

**Table B.7. Density Of Contributions**

<b>Age</b>	<b>Males</b>	<b>Females</b>
<b>17</b>	38%	32%
<b>22</b>	68%	63%
<b>27</b>	76%	75%
<b>32</b>	81%	79%
<b>37</b>	83%	82%
<b>42</b>	83%	83%
<b>47</b>	85%	85%
<b>52</b>	86%	85%
<b>57</b>	86%	85%
<b>62</b>	86%	84%

The following table shows the expected incidence rates of insured persons qualifying for Invalidation benefit which is assumed for all projection years.

**Table B.8. Rates of Entry Into Invalidation**

<b>Age</b>	<b>Males</b>	<b>Females</b>
<b>17</b>	-	-
<b>22</b>	-	-
<b>27</b>	0.172	0.294
<b>32</b>	0.574	0.469
<b>37</b>	1.336	1.126
<b>42</b>	1.438	1.414
<b>47</b>	3.519	2.673
<b>52</b>	5.412	5.966
<b>57</b>	10.186	8.230
<b>62</b>	14.961	10.493

Table B.9, shows the assumed probability of Survivor benefit claims and the average ages of new claimants, groups by the age of the deceased.

**Table B.9. Probability of a Deceased Having Eligible Survivors & Their Average Ages**

Age	Males		Females	
	Probability of Eligible Spouse	Avg # of Eligible Children	Probability of Eligible Spouse	Avg # of Eligible Children
<b>17</b>	0%	-	0%	-
<b>22</b>	8%	0.0	0%	0.0
<b>27</b>	5%	0.0	0%	0.1
<b>32</b>	25%	0.1	8%	0.2
<b>37</b>	23%	0.3	15%	0.4
<b>42</b>	26%	0.4	13%	0.4
<b>47</b>	31%	0.4	10%	0.4
<b>52</b>	29%	0.2	8%	0.3
<b>57</b>	32%	0.2	10%	0.1
<b>62</b>	31%	0.2	10%	0.0
<b>67</b>	26%	0.1	7%	-
<b>72</b>	10%	0.0	4%	-
<b>77</b>	9%	0.1	3%	-
<b>82</b>	8%	0.0	2%	-
<b>87</b>	6%	0.0	1%	-

# Appendix C Projection Results – Alternate Scenarios

Table C.1. Projected Barbados Population, All Scenarios

Year	All Ages	0-15		16-66		67+		Age Depend. Ratio
<b>2010</b>	277,821	58,523	21.1%	187,698	67.6%	31,601	11.4%	0.17
<b>2017</b>	275,119	52,057	18.9%	188,374	68.5%	34,689	12.6%	0.18
<b>Best Estimate</b>								
<b>2020</b>	274,959	48,478	17.6%	189,146	68.8%	37,334	13.6%	0.20
<b>2030</b>	277,013	42,506	15.3%	183,725	66.3%	50,782	18.3%	0.28
<b>2040</b>	273,176	41,770	15.3%	172,830	63.3%	58,576	21.4%	0.34
<b>2050</b>	262,141	37,706	14.4%	166,089	63.4%	58,346	22.3%	0.35
<b>2060</b>	249,508	34,597	13.9%	158,921	63.7%	55,990	22.4%	0.35
<b>2070</b>	237,707	32,659	13.7%	145,853	61.4%	59,195	24.9%	0.41
<b>Optimistic</b>								
<b>2020</b>	277,610	49,042	17.7%	191,492	69.0%	37,076	13.4%	0.19
<b>2030</b>	281,086	44,367	15.8%	186,810	66.5%	49,909	17.8%	0.27
<b>2040</b>	278,575	44,177	15.9%	177,499	63.7%	56,898	20.4%	0.32
<b>2050</b>	268,960	40,428	15.0%	172,373	64.1%	56,158	20.9%	0.33
<b>2060</b>	258,001	37,911	14.7%	166,068	64.4%	54,022	20.9%	0.33
<b>2070</b>	247,642	36,324	14.7%	154,788	62.5%	56,530	22.8%	0.37
<b>Pessimistic</b>								
<b>2020</b>	272,137	47,881	17.6%	186,597	68.6%	37,659	13.8%	0.20
<b>2030</b>	271,886	40,366	14.8%	179,550	66.0%	51,970	19.1%	0.29
<b>2040</b>	265,821	38,781	14.6%	166,063	62.5%	60,978	22.9%	0.37
<b>2050</b>	252,028	34,237	13.6%	156,484	62.1%	61,307	24.3%	0.39
<b>2060</b>	235,761	30,379	12.9%	147,339	62.5%	58,043	24.6%	0.39
<b>2070</b>	220,399	27,928	12.7%	131,759	59.8%	60,713	27.5%	0.46

**Table C.2. Projected Cash Flows & Reserves, *Pessimistic Scenario* (millions of \$'s)**

Year	Income				Expenditure				Reserves			
	Contributions	Investment	Other	Total	Benefits	Admin. & Other	Total	Surplus/ (Deficit)	Surplus/ (Deficit)	End of Year	# of times current year's	
<b>2018</b>	649.7	279.6	3.5	<b>932.8</b>	692.1	955.1	1,647.2	(714.4)	<b>1,647.2</b>	<b>(714.4)</b>	<b>4,287</b>	5.8
<b>2019</b>	580.8	126.1	2.9	<b>709.8</b>	708.6	43.0	751.6	(41.8)	<b>751.6</b>	<b>(41.8)</b>	<b>4,245</b>	5.6
<b>2020</b>	586.6	124.6	2.9	<b>714.1</b>	734.9	43.5	778.4	(64.3)	<b>778.4</b>	<b>(64.3)</b>	<b>4,181</b>	5.4
<b>2021</b>	601.9	122.3	3.0	<b>727.2</b>	774.7	44.6	819.3	(92.2)	<b>819.3</b>	<b>(92.2)</b>	<b>4,089</b>	5.0
<b>2022</b>	621.6	179.0	3.1	<b>803.7</b>	802.9	46.0	849.0	(45.3)	<b>849.0</b>	<b>(45.3)</b>	<b>4,043</b>	4.8
<b>2023</b>	643.5	176.9	3.2	<b>823.6</b>	826.0	47.7	873.7	(50.1)	<b>873.7</b>	<b>(50.1)</b>	<b>3,993</b>	4.6
<b>2027</b>	736.1	164.7	3.7	<b>904.5</b>	938.8	54.5	993.4	(88.9)	<b>993.4</b>	<b>(88.9)</b>	<b>3,696</b>	3.7
<b>2037</b>	909.5	70.1	4.5	<b>984.2</b>	1,247.8	67.4	1,315.1	(331.0)	<b>1,315.1</b>	<b>(331.0)</b>	<b>1,620</b>	1.2
<b>2047</b>	1,103.1	(138.2)	5.5	<b>970.5</b>	1,652.3	81.7	1,734.0	(763.6)	<b>1,734.0</b>	<b>(763.6)</b>	<b>(3,909)</b>	(2.3)
<b>2057</b>	1,391.8	(565.7)	7.0	<b>833.1</b>	2,211.1	103.1	2,314.2	(1,481.2)	<b>2,314.2</b>	<b>(1,481.2)</b>	<b>(15,172)</b>	(6.6)
<b>2067</b>	1,753.1	(1,371.7)	8.8	<b>390.1</b>	3,008.7	129.9	3,138.6	(2,748.5)	<b>3,138.6</b>	<b>(2,748.5)</b>	<b>(36,362)</b>	(11.6)
<b>2077</b>	2,203.7	(2,828.9)	11.0	<b>(614.2)</b>	4,038.9	163.3	4,202.1	(4,816.3)	<b>4,202.1</b>	<b>(4,816.3)</b>	<b>(74,548)</b>	(17.7)

*Negative reserves indicate the indebtedness of the Fund and negative investment income is the current cost of servicing that debt.*

**Table C.3. Projected Benefit Expenditure- *Pessimistic* Scenario (millions of \$'s)**

Year	Pensions, Grants & Benefits						Benefits as a % of:	
	Old Age Cont.	Invalidity	Survivors	Non-Cont. Old Age	Short-term	Employ. Injury	Insurable Wages	GDP
<b>2018</b>	549.2	77.2	27.0	8.8	31.9	10.8	18.5%	7.2%
<b>2019</b>	544.0	81.3	27.4	7.4	36.6	11.9	19.8%	7.3%
<b>2020</b>	566.8	84.5	28.3	6.2	36.9	12.2	20.3%	7.5%
<b>2021</b>	600.4	89.0	29.6	5.2	37.9	12.6	20.8%	7.6%
<b>2022</b>	623.5	92.3	30.7	4.2	39.1	13.1	20.9%	7.6%
<b>2023</b>	641.9	95.1	31.6	3.4	40.5	13.5	20.8%	7.5%
<b>2027</b>	731.4	108.4	36.0	1.3	46.4	15.4	20.7%	7.5%
<b>2037</b>	986.4	136.5	48.3	0.0	57.3	19.3	22.2%	7.7%
<b>2047</b>	1,337.7	163.9	57.9	0.0	69.5	23.2	24.3%	8.1%
<b>2057</b>	1,805.4	219.3	68.8	-	87.6	30.0	25.7%	8.7%
<b>2067</b>	2,484.5	288.8	86.5	-	110.4	38.5	27.8%	9.5%
<b>2077</b>	3,413.6	328.0	112.1	-	138.8	46.4	29.7%	10.2%

*Note: Figures for Old Age Non-contributory pensions are amounts for which NIS is financially obligated.*

**Table C.4. Projected Contributors & Pensioners, *Pessimistic Scenario***

Year	# of Contributors	# of Pensioners					Total # of Pensioners	Ratio of Contributors Pensioners
		Old Age Cont.	Invalidity	Survivors	Non-Cont. Old Age	Death & Disablement		
<b>2018</b>	113,257	30,731	4,517	3,185	2,093	293	<b>40,819</b>	<b>2.8</b>
<b>2019</b>	112,509	30,927	4,683	3,233	1,755	304	<b>40,903</b>	<b>2.8</b>
<b>2020</b>	112,908	31,542	4,747	3,287	1,462	308	<b>41,345</b>	<b>2.7</b>
<b>2021</b>	113,921	32,152	4,802	3,334	1,207	311	<b>41,806</b>	<b>2.7</b>
<b>2022</b>	115,304	32,521	4,846	3,373	985	314	<b>42,040</b>	<b>2.7</b>
<b>2023</b>	116,700	32,828	4,892	3,402	794	317	<b>42,233</b>	<b>2.8</b>
<b>2027</b>	122,335	33,691	5,034	3,485	290	326	<b>42,827</b>	<b>2.9</b>
<b>2037</b>	118,380	35,179	5,013	3,595	3	326	<b>44,116</b>	<b>2.7</b>
<b>2047</b>	109,060	38,158	4,828	3,380	0	313	<b>46,679</b>	<b>2.3</b>
<b>2057</b>	102,964	40,843	4,993	3,153	-	322	<b>49,311</b>	<b>2.1</b>
<b>2067</b>	94,488	43,564	4,921	3,054	-	317	<b>51,856</b>	<b>1.8</b>
<b>2077</b>	83,600	44,870	4,089	2,977	-	266	<b>52,202</b>	<b>1.6</b>

*Note: The number of Old Age Non-contributory pensioners shown are those for whom NIS is financially obligated.*

**Table C.5. Projected Cash Flows & Reserves, *Optimistic Scenario* (millions of \$'s)**

Year	Income				Expenditure				Reserves	
	Contributions	Investment	Other	Total	Benefits	Admin. & Other	Total	Surplus/ (Deficit)	End of Year	# of times current year's expenditure
2018	649.7	279.6	3.5	932.8	692.1	955.1	1,647.2	(714.4)	4,287	5.8
2019	615.4	168.9	3.1	787.3	707.1	44.6	751.7	35.6	4,323	5.8
2020	627.7	170.0	3.1	800.9	733.0	45.5	778.5	22.3	4,345	5.6
2021	650.6	170.6	3.3	824.4	771.2	47.2	818.3	6.1	4,351	5.3
2022	678.6	234.8	3.4	916.9	798.9	49.2	848.1	68.7	4,420	5.2
2023	706.1	238.7	3.5	948.3	821.4	51.2	872.6	75.7	4,495	5.2
2027	817.9	257.6	4.1	1,079.6	919.8	59.3	979.0	100.6	4,861	5.0
2037	1,100.4	292.6	5.5	1,398.6	1,185.6	79.8	1,265.3	133.2	6,064	4.8
2047	1,439.5	354.2	7.2	1,800.9	1,585.5	104.4	1,689.9	111.1	7,314	4.3
2057	1,928.5	388.5	9.6	2,326.6	2,180.8	139.8	2,320.6	6.0	7,963	3.4
2067	2,574.5	322.6	12.9	2,910.0	3,052.7	186.6	3,239.4	(329.3)	6,443	2.0
2077	3,434.3	12.9	17.2	3,464.4	4,182.8	249.0	4,431.7	(967.3)	(218)	(0.0)

*Negative reserves indicate the indebtedness of the Fund and negative investment income is the current cost of servicing that debt.*

**Table C.6. Projected Benefit Expenditure– *Optimistic* Scenario (millions of \$'s)**

Year	Pensions, Grants & Benefits						Benefits as a % of:	
	Old Age Cont.	Invalidity	Survivors	Non-Cont. Old Age	Short-term	Employ Injury	Insurable Wages	GDP
<b>2018</b>	547.7	77.1	27.1	8.8	31.9	10.8	18.4%	7.1%
<b>2019</b>	540.9	81.1	27.6	7.4	37.9	12.1	19.0%	7.2%
<b>2020</b>	562.7	84.5	28.5	6.2	38.7	12.5	19.3%	7.2%
<b>2021</b>	594.1	88.9	30.0	5.2	40.1	13.0	19.6%	7.3%
<b>2022</b>	615.8	92.3	31.2	4.2	41.8	13.5	19.5%	7.2%
<b>2023</b>	632.8	95.4	32.2	3.4	43.5	14.0	19.3%	7.1%
<b>2027</b>	706.5	108.5	37.0	1.3	50.4	16.1	18.6%	6.7%
<b>2037</b>	907.8	139.5	49.2	0.0	67.8	21.3	17.8%	6.0%
<b>2047</b>	1,226.4	181.6	61.0	0.0	88.7	27.8	18.2%	5.9%
<b>2057</b>	1,690.5	255.4	78.2	-	118.8	37.8	18.7%	6.1%
<b>2067</b>	2,388.5	348.7	105.9	-	158.6	51.0	19.6%	6.3%
<b>2077</b>	3,334.2	427.1	144.1	-	211.6	65.8	20.2%	6.4%

*Note: Figures for Old Age Non-contributory pensions are amounts for which NIS is financially obligated.*

**Table C.7. Projected Contributors & Pensioners, *Optimistic Scenario***

Year	# of Contributors	Old Age Cont.	Invalidity	Survivors	Non-cont. Old Age	Death & Disablement	Total # of Pensioners	Ratio of Contributors to Pensioners
<b>2018</b>	113,933	30,643	4,513	3,195	2,093	293	40,738	2.8
<b>2019</b>	113,878	30,748	4,676	3,255	1,755	303	40,738	2.8
<b>2020</b>	114,992	31,262	4,736	3,320	1,462	307	41,087	2.8
<b>2021</b>	116,772	31,760	4,789	3,379	1,207	311	41,445	2.8
<b>2022</b>	118,954	32,010	4,833	3,430	985	314	41,571	2.9
<b>2023</b>	121,158	32,195	4,879	3,471	794	317	41,655	2.9
<b>2027</b>	128,755	32,550	5,035	3,601	290	327	41,803	3.1
<b>2037</b>	125,180	32,930	5,116	3,793	3	334	42,176	3.0
<b>2047</b>	119,466	34,947	5,098	3,684	0	332	44,061	2.7
<b>2057</b>	115,927	37,080	5,303	3,586	-	343	46,313	2.5
<b>2067</b>	109,688	39,295	5,232	3,586	-	339	48,452	2.3
<b>2077</b>	102,002	39,949	4,564	3,551	-	299	48,364	2.1

*Note: The number of Old Age Non-contributory pensioners shown are those for whom NIS is financially obligated.*

## Appendix D Income, Expenditure & Reserves, 2015–2017

	2015	2016	2017
<b>Income</b>			
Contribution Income	626.7	532.3	623.7
Investment Income	289.6	323.6	332.8
Other Income	4.6	4.8	3.4
<b>Total Income</b>	<b>920.8</b>	<b>860.8</b>	<b>959.9</b>
<b>Expenditure</b>			
<b>Benefits</b>			
Sickness Benefit	12.8	24.1	29.4
Maternity Benefit	7.5	7.3	8.0
Maternity Grant	0.1	0.2	0.2
Funeral Benefit	2.7	3.4	3.2
Old-age Benefit	405.7	457.8	503.9
Invalidity Benefit	55.9	66.0	71.0
Survivor's Benefit	23.4	27.2	32.1
Non-Cont Old Age Benefit	8.8	10.4	9.8
Disablement Grant	0.3	1.3	1.6
Travelling Expenses	0.0	0.0	0.1
Medical Expenses	0.1	0.3	-
Injury Benefit	6.8	3.8	2.8
Disablement Benefit	3.1	4.2	4.0
Death Benefit	0.4	0.4	0.4
<b>Total Benefit Expenditure</b>	<b>527.7</b>	<b>606.6</b>	<b>666.5</b>
<b>Administrative Expenditure</b>	<b>73.7</b>	<b>77.5</b>	<b>75.4</b>
<b>Total Expenses</b>	<b>601.4</b>	<b>684.1</b>	<b>741.9</b>
<b>Excess of Income over Expenditure</b>	<b>319.5</b>	<b>176.7</b>	<b>218.0</b>
<b>Reserves at End of Year</b>	<b>4,935</b>	<b>5,013</b>	<b>5,283</b>







### **National Insurance Office**

Frank Walcott Building, Culloden Road, St. Michael, BB11115, Barbados, W.I.  
Tel# (246) 431-7400 | Fax # (246) 431-7408 | Website: [www.nis.gov.bb](http://www.nis.gov.bb)

### **The NIS Unemployment Bureau**

E. Humphrey Walcott Building, Collymore Rock, St. Michael  
Tel# (246) 431-7400 | Fax # (246) 431-7408 | Website: <http://www.nis.gov.bb>