LifeWorks

# Barbados National Insurance Scheme

17th Actuarial Review of the National Insurance Fund, Unemployment Fund and Severance Fund as of December 31, 2020

July 22, 2022

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# Abbreviations and Acronyms

| | |
|---|---|
| GDP | Gross Domestic Product |
| GOB | Government of Barbados |
| IE | Insurable Earnings |
| ILO | International Labour Office |
| IPS | Investment Policy Statement |
| IT | Information Technology |
| NI | National Insurance |
| NIB | National Insurance Board |
| NIF | National Insurance Fund |
| NIS | National Insurance Scheme |
| OACP | Old Age Contributory Pension |
| OECD | Organisation for Economic Co-operation & Development |
| SEPs | Self-employed Persons |
| 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 17th Actuarial Review of National Insurance, Unemployment and Severance Funds and it is being prepared as of December 31, 2020, three years after the 16th 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 Fund. 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, 2023.

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 to financial and statistical data used for the preparation of the 16th 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 2020 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.

We wish to thank Mrs. Jennifer Hunte - Acting Director, Mrs. Janice Estwick - Financial Controller, Mr. Luther Jones - Manager Investments, Ms. Katrina Bend – Marketing & Research Officer, and all other members of the National Insurance staff who assisted with this review.

# Executive Summary

Sustainability of the National Insurance managed funds is inextricably linked to the performance of the local economy. During the ten years prior to 2020, Barbados experienced population decline, seven years of negative real GDP growth, declining employment levels and negative real wage growth. The Government's 2018 debt restructuring exercise designed to stabilize public finances resulted in the National Insurance and Severance Funds incurring investment losses, while the COVID-19 pandemic placed additional strain on individuals, businesses, the government, and all NIS funds.

Periodic actuarial reviews of the National Insurance, Severance and Unemployment 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 2018 and 2020 and presents prospects for the three funds. Unfavourable experience during the review period, combined with the uncertainty surrounding the post-COVID economic recovery, results in the outlook for each of the three funds being worse than it was three years prior.

## A. Experience During the Review Period

### Debt Restructuring

NIS investments in public sector securities exceeded the limits set out in its Investment Policy for many years and 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 investments. Through a debt restructuring exercise that was part of the Government's Barbados Economic Recovery and Transformation (BERT) programme intended to set public debt on a downward trajectory and stabilize the Barbados dollar and wider economy, the three NIS Funds lost $1.32 billion in public sector debt as shown below. While debt restructuring has caused the NIS to more closely monitor cash flows and its level of liquid assets, it has not caused any delays in the NIS meeting its obligations.

| Fund | Before Exchange | After Exchange | Change |
|---|---|---|---|
| **National Insurance** | $4,035m | $2,763m | ($1,272m) |
| **Unemployment** | $20m | $20m | - |
| **Severance** | $176m | $126m | ($50m) |

While the National Insurance and Severance Funds lost $1.32 billion in investments/assets due to debt restructuring, the obligation on future taxpayers in Barbados was simultaneously reduced by $1.32 billion. For the NIS to recoup this investment loss it will have to collect additional contributions from businesses/ employers and workers, almost the same institutions and individuals that pay taxes to the Government.

Therefore, the economic effect of the debt restructuring and the reduced tax burden to residents and businesses in Barbados is not as significant to taxpayers as it is to the NIS.

**COVID-19**

In 2020, the COVID-19 pandemic led to border closures and internal lockdowns causing major disruptions to both individual and company finances and an increased strain on public sector finances. GDP contracted by an estimated 14% in 2020. All NIS-managed funds saw a reduction in contribution income while the Unemployment Fund had a 3-fold increase in benefit payouts. With the Unemployment benefit not available to self-employed persons, the government provided income support to affected persons in the form of a fixed monthly amount for two months. Although delayed, Severance Fund expenditure will also be significantly higher than usual. It will likely take several years for employment and contribution collections to return to pre-2020 levels.

**Fund Experience at 2020 Year-End Positions**

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

- The number of NIS contributors decreased each year while the number of pensioners and total pension payouts increased each year as expected.
- Interest rates on commercial bank fixed deposits remained low as were yields on restructured Government of Barbados debt.
- As of December 2020, total NIF reserves, excluding contributions receivable, were $4.2 billion, 5.2 times expenditure in 2020.
- The portion of NIF investments held in Government of Barbados and State Owned Enterprises stood at 69%, well above target allocations in the Investment Policy. 87% of the Fund's assets are invested in Barbados. (See Table 1.8 and Figure 1.4)
- After paying out $156 million in benefits and borrowing $93 million from other NIS-managed Funds, the Unemployment Fund had cash reserves of $12 million at the end of 2020.
- While employer rebates from the Severance Fund closely matched investment income over the three years with no contribution income, payments made on behalf of employers who were unable to make the required severance payments, totaled $51 million. (See Table 7.2)
- As of December 2020, total Severance Fund reserves, excluding contributions receivable and amounts due from employers, were $107 million. It is estimated that rebates and employer payments totalling $26 million were due for pending claims.
- Challenges related to the insurance administration system continued to plague the NIS with delays in the payment of benefits and completion of statutory reports. The NIS has not issued NIF annual reports since 2011 and has not submitted to the Minister audited financial statements since 2010.

## B. Assessment & Outlook for the Three Funds

### 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.

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.

The results of these projections are considerably less favourable than those of the previous review for the following reasons:

(a) Economic experience being less favourable than expected, primarily due to COVID-19,

(b) Less favourable population and economic projections given the official estimate that the population has already started to decline, and

(c) Exclusion of contributions receivable from net assets and estimates of contribution income on a cash basis.

Following are highlights of the projected outlook for the National Insurance Fund. Details may be found in Chapters 3 and 4.

1. Except for under the *Optimistic s*cenario in 2022 to 2025, total expenditure is expected to exceed total income each year. As a result, a growing portion of assets will be required to help meet expenditure each year.
2. The Fund will be depleted between 2034 and 2041.
3. The pay-as-you-go rate in the mid-2030's when Fund depletion is projected, will be between 27% and 34%.

Had debt restructuring not affected the National Insurance Fund, reserves would have depleted three years later but pay-as-you-go rates would be unchanged.

For illustrative purposes, three scenarios with varying levels of above normal in-migration in the late 2020's, and further increases that keep the population relatively stable thereafter, have been modelled. Under these scenarios, larger populations would result in Fund depletion being postponed several years and pay-as-you-go rates being lower. (See Appendix E)

The funding target of reserves in 2030 being at least 5 times annual expenditure that was set in 2005 is no longer achievable at current contribution rates and benefit provisions.

### Unemployment Fund

The Unemployment Fund suffered its worse financial experience in 2020 with benefit expenditure of 5.7% of insurable earnings – over twice its previous peak. Average annual benefit expenditure over the previous 20 years was 1.78%. With insufficient assets to meet expenditure, the Fund borrowed a total of $93 million from the National Insurance and the Catastrophe Funds and met all of its obligations as quickly as claims were processed. All amounts borrowed will have to be repaid.

The Unemployment Fund now needs to collect enough in contributions to meet benefit and administrative costs, repay borrowed funds, and build up reserves to a desired target. Government of Barbados will recapitalize the fund with $143 million over three years. To achieve a funding level of 1 to 2 year's worth of expenditure in 2030, the contribution rate will need to be up to 0.25% more than the actual cost of benefits, as a percent of insurable earnings, each year.

### Severance Fund

The Severance Fund may be financially challenged soon if most employers are unable to pay the amounts due to their former employees, and the large amount due from previous employer payments remains uncollected. The Fund also faces administrative challenges which ultimately result in lengthy delays in payments to severed workers.

## C. Recommendations

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 polices dealing with benefits, funding and risk.

1. A second round of comprehensive pension reforms should begin immediately. Reform discussions and ultimate decisions should be guided by three policies that explicitly state what the NIS seeks to accomplish, what circumstances it wishes to avoid and where objectives conflict, what are its priorities.
    i. **Funding Policy:** should include target funding levels, why, when and by how much contribution rates should be increased as well as the maximum contribution rate considered acceptable.
    ii. **Benefits Policy:** should include the purpose and goals of each benefit and justification for its eligibility rules and rates/amounts paid.
    iii. **Risk Policy:** should identify the various risks that could result in the NIS not meeting its objectives or the Fund falling short of the projections presented in this report as well as, include rational responses to events that may occur.
2. While reforms mentioned above will primarily focus on Old-Age Contributory Pension, there should also be a comprehensive review of all social protection programmes in Barbados. Gaps in existing income support programmes were exposed during 2020. A review of how well employer benefits mandated by labour laws sync with NIS benefits and government income support programs to ensure equitable benefits should be conducted.

3. Implement flexible ways for self-employed persons to pay contributions without forms and without specific monthly amounts.
4. For the Unemployment Fund implement a system of annual rate-setting based on established funding objectives, whereby the rate for the following year is set by October 31 of each year.
5. Expand unemployment benefit coverage to self-employed persons.
6. Conduct a comprehensive review of the Severance Act with specific emphasis on (i) its relevance during current labour market conditions and (ii) how Severance benefits fit with other income support benefits. Improving equity among employers by ensuring that those who initially fail to make Employer Payments are eventually made to pay, as well as improving actual claims and benefit payment processes, should also be given high priority.
7. The NIS faces many system, 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. While transitioning the NIS to a full statutory body, as stated by the Board, will not immediately solve all its challenges, a well-managed transition should produce improved outcomes and the achievement of the NIS's mission, goals and objectives.

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. At current contribution rates and pension provisions the NIS is not sustainable as future generations will be required to contribute substantially more, or receive substantially reduced benefits, than previous and current generations.

The future is uncertain, and as recent experience has shown, changes could be sudden and significant. 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 rational responses to specific potential outcomes such as declining population, extended periods of low economic growth, and shocks caused by natural disasters and pandemics.

# Chapter 1 National Insurance Fund Experience Since The 16th 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 after no adjustment in 2018, adjustments were made in 2019 and 2020.

**Table 1.1. Earnings Limit and Pension Adjustments, 2018 to 2020**

| Change Effective | Monthly Earnings Limit (Ceiling) | Increases To Earnings Limit | Minimum Weekly Contributory Pension | Increases To Pensions & Grants |
|---|---|---|---|---|
| **January 2018** | $4,650 | - | $190 from January<br>$235 from July | 0% in January.<br>Special adjustment approved by GOB in July |
| **January 2019** | $4,820 | 3.7% | $239 | 1.58% |
| **January 2020** | $4,880 | 1.2% | $243 | 1.61% |

No adjustments were made for 2021.

All but one of the pension reforms enacted in 2006 have been fully phased in. While the normal pension age reached 67 in January 2018, calculations for Old Age Contributory Pensions will use a combination of the “old” and “new” bases until 2022.

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

## 1.2 Debt Restructuring

In October 2018, the Government of Barbados (GOB), through a debt restructuring exercise designed to reduce public sector debt levels which had reached close to 160% of GDP, exchanged the portfolio of NIS debt instruments and arrears owed by the GOB and several State Owned Enterprises (SOEs) as of October 1, 2018, in return for various series of new GOB debt instruments. At the time, approximately 74% of the NIF was invested in government and SOE securities, well above target allocations in its Investment Policy. The following table highlights the combined effect of the debt restructuring on the National Insurance, Severance and Unemployment Funds.

**Table 1.2. Effect of Debt Exchange on all Funds Managed by the NIS (October 2018)**

| Investment Category | Before Exchange | After Exchange | | | | |
|---|---|---|---|---|---|---|
| | | Series B | Series D | Series E | Series F | Total |
| **Treasury Bills** | $ 150 | $90 | - | - | $60 | $150 |
| **Notes & Debentures** | $ 3,518 | - | - | $2,115 | - | $2,115 |
| **Net Arrears from GOB** | | $233 | 2 | - | $233 | $469 |
| **SOE Loans & Bonds** | $229 | - | $87 | $89 | - | $176 |
| **Totals** | **$3,897** | **$324** | **$89** | **2,203** | **$293** | **$2,909** |

Totals may be off due to rounding

Along with the exchange, the NIF was issued $469 million of Series B and Series F Bonds, split 50/50, as settlement for outstanding contributions, non-contributory pension payment, and rents due from GOB. After recognizing net arrears from Government, the reduction in face value of public sector securities and arrears held by NIB-managed funds was $1.46 billion.

A description of the four series of bonds that NIS-managed funds now hold is shown below.

**Table 1.3. Description of Exchange Securities**

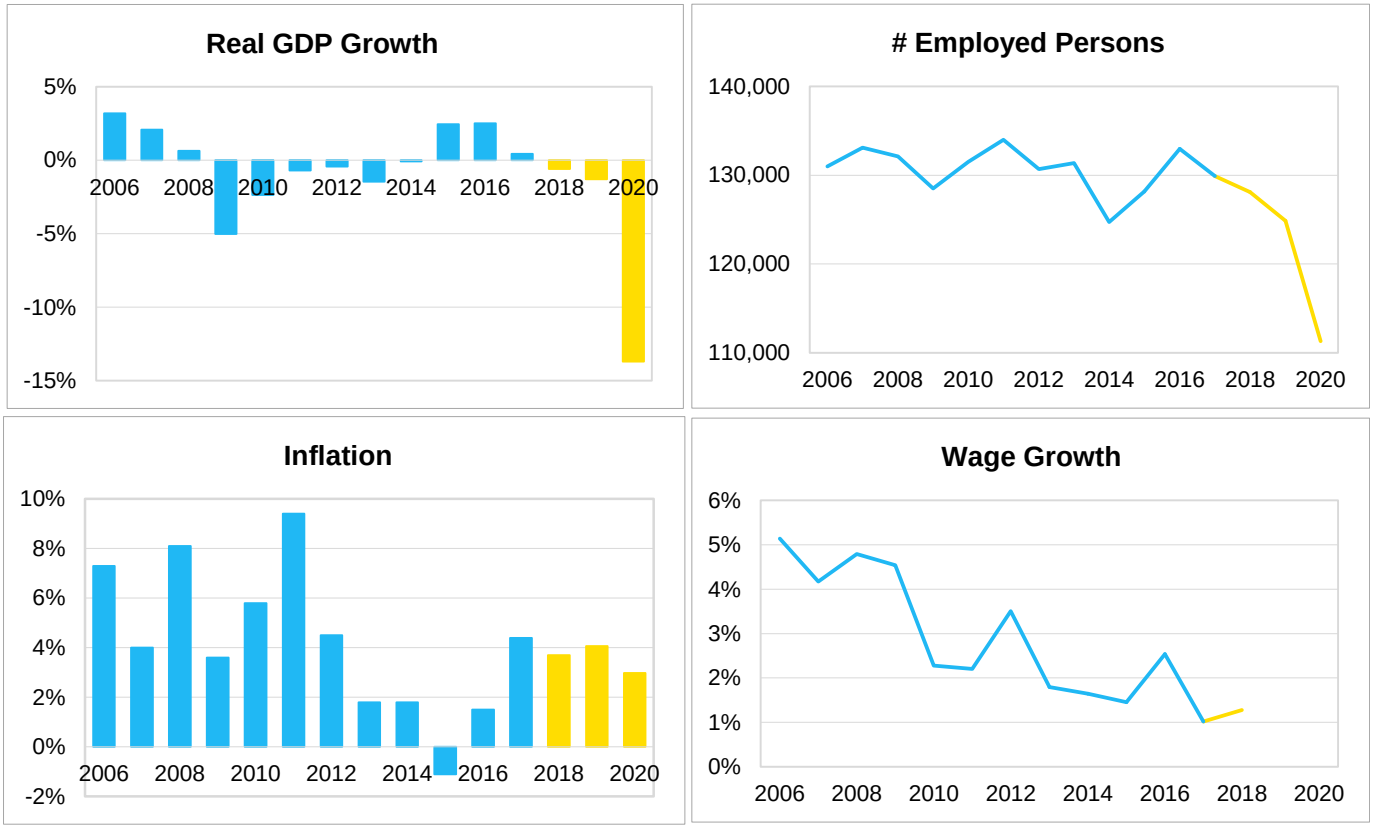
| Series | Initial Instrument | Structure of New Instrument | Interest Rate |
|---|---|---|---|
| **B** | • Treasury Bills<br>• Net arrears from GOB & SOEs (50%) | 11 amortising strips with maturities ranging from 5 to 15 years | 1% for first 3 years<br>2.5% for year 4<br>3.75% to maturity |
| **D** | • SOE Bonds | 20 strips with maturities ranging from 15 to 35 years | 1.50% for first 5 years<br>4.25% for years 6 to 10<br>6.00% for years 11 to 15<br>7.50% for years 16 to maturity |
| **E** | • Notes & Debentures<br>• GOB & SOE loans & bonds | 25-year amortising bond at a discount of 37.5% | 4% for first 3 years<br>8% thereafter |
| **F** | • Net arrears from GOB & SOEs (50%) | 4-year bond with 42 monthly principal repayments starting after 6 months | 0% |

As of December 2020, the National Insurance Fund held 20.1% of outstanding GOB debt while the other five funds held a combined 0.9%.

## 1.3 Economic Experience

The following four charts illustrate experience of four key economic indicators from 2006 to 2020.

**Figure 1.1. Key Economic Indicators, 2006 to 2020**




Note: The Wage Index was last published for 2018. Only 2 of 4 Labour Force Surveys (LFS) were conducted in 2020. The number of employed persons shown for 2020 is the average of the Q3 and Q4 LFS.

The COVID-19 pandemic had a significant impact on the economy with real GDP contracting by 14% in 2020. This followed a 10-year period during which real GDP growth averaged 0.2% per annum.

Quarterly Labour Force surveys up to 2019 show a steady decline in employment between 2016 and 2019 with the number of employed persons in 2019 being 7% less than in 2011. Over the past 10 years wage growth, as measured by the Wage Index, is trending downwards. (The last published Wage Index is for 2018)

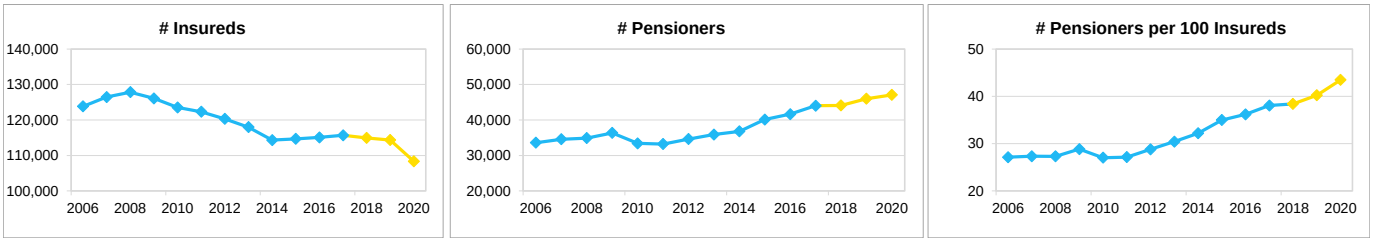
During the 3-year review period, the economy contracted, employment levels declined each year and inflation averaged 3.6% per annum.

## 1.4 National Insurance Fund Experience

NIF contributions are directly affected by economic and labour market experience. In line with economic growth and employment levels, the number of persons making contributions generally declined between 2008 and 2019. The significant falloff in 2020 was due to COVID-19.

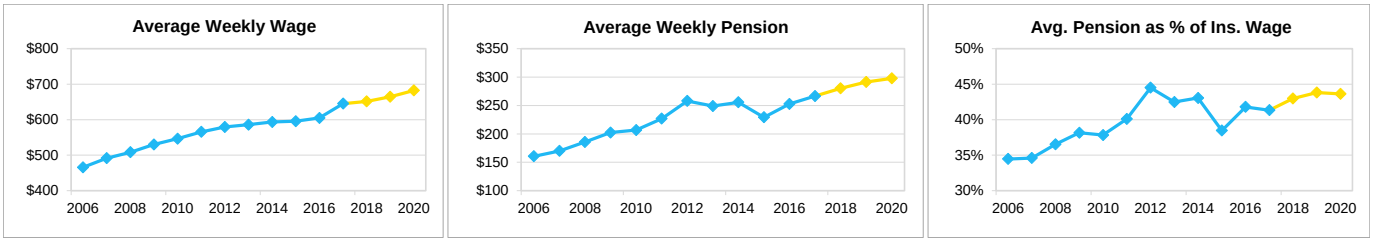
The number of pensions in payment continues to increase as expected. The key result from the number of pensioners growing at a faster rate than the number of contributors is an increase in the demographic ratio (number of pensioners per 100 insured persons) from 38 to 44 between 2017 and 2020. The inverse of this ratio indicates that there were just 2.3 contributors for each pensioner in 2020.

**Figure 1.2. Contributors & Pensioners, 2006 to 2020**




Both the average insurable wage and average pension amount increased each year during the review period. (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. Incomplete data may account for fluctuations.

**Figure 1.3. Average Insurance Wages & Pensions in Payment, 2006 to 2020**



The following table provides summary income and expenditure amounts for 2018 to 2020. A more detailed version of the National Insurance Fund finances for these years may be found in Appendix D.

**Table 1.4. Summary of NIF Finances, 2018 – 2020** (millions of $'s)

| | 2018 | 2019 | 2020 |
|---|---|---|---|
| **Income** | | | |
| **Contributions** | 621.4 | 670.9 | 594.6 |
| **Investment** | 267.1 | 145.6 | 145.1 |
| **Other** | 3.5 | 4.7 | 4.2 |
| **Total** | **891.9** | **821.3** | **744.0** |
| **Expenditure** | | | |
| **Benefits** | 708.3 | 752.5 | 777.1 |
| **Administrative** | 45.2 | 36.1 | 33.5 |
| **Total** | **1,558.7** | **788.6** | **810.6** |
| **Excess of Income over Expenditure** | **(666.7)** | **32.7** | **(66.6)** |
| | | | |
| **Net Loss due to Debt Restructuring** | 805.1 | - | - |

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

## 1.5 Experience Compared with Projections of the 16th Actuarial Review

The NIS uses accrual-based accounting. For contributions, this means that the total value of contributions on monthly schedules submitted by employers and self-employed persons is considered due. However, not all expected and due contributions are collected.

For the projections of the 16th Actuarial Review, reserves at the start of the projection period, were assumed to include 60% of contributions and other receivables, $327 million in total. As part of the debt restructuring exercise, all past contributions, interest and rent due from GOB and statutory bodies up to September 2018 were settled. There remains, however, past due contributions from private employers. Given the uncertainty in the collectability of arrears contributions, outstanding contributions are excluded from the analysis and projections presented in this report. Therefore, reserves in this report are assumed to be the sum of cash, amounts due from other funds and the value of investments.

Shown in Table 1.5 is a comparison of cumulative experience over the 3-year review period, 2018 to 2020, with the projections of the Best Estimate Scenario of the 16th Actuarial Review.

**Table 1.5. NIF Projections from 16th Actuarial Review Compared With Actual Experience**

| | 2018-2020 Projected (millions of $'s) | 2018-2020 Actual (millions of $'s) | % Difference |
|---|---|---|---|
| Contribution Income (actual amount from schedules) | $1,855 | $1,887 | 2% above projected |
| Investment & Other Income | $574 | $570 | 1% below projected |
| Benefit Expenditure | $2,134 | $2,238 | 5% above projected |
| Administrative & Other Expenditure | $133 | $115 | 14% below projected |

Actual contributions shown above include both amounts collected and amount due but not collected. Annual depreciation of the IT system upgrade which ended in 2018 was assumed for the three projection years, hence the significant variance in administrative costs.

During 2020, $88 million was transferred to the Unemployment Fund allowing it to meet its benefit obligations which increased threefold due to spikes in unemployment following COVID-19 related lockdowns and layoffs. This amount is to be repaid.

Net National Insurance Fund assets at the end of 2020 are estimated at $4,234 million. Excluded from the estimate of net asset are contributions and other receivables and amounts payable. This amount is $256 million less than projected in the 16th Actuarial Review.

**Table 1.6. Estimated Net Assets, December 31, 2020 ($'s in millions)**

| | |
|---|---|
| **Cash** | $101 |
| **Interest Receivable** | $227 |
| **Investments** | $3,818 |
| **Due from Other Funds** | $88 |
| **Total Net Assets** | $4,234 |

## 1.6 Investments

Due primarily to debt restructuring in 2018, National Insurance Fund investments declined from $4.6 billion in December 2017 to $3.8 billion at the end of 2020. The average yield on investments was 4.3% compared to 7.3% in the previous review period. This reduction is due primarily to the lower yields on Government debt following debt restructuring. The following table provides a summary of the investment mix of the National Insurance Fund at year-ends 2017 and 2020.

**Table 1.7. Summary of NIF Investments, Year-ends 2020 & 2017 (millions of $'s)**

| Investment Category | December 2020 | | | December 2017 | |
|---|---|---|---|---|---|
| **Deposits** | $28.9 | 0.8% | | $77.4 | 1.7% |
| **Treasury Bills & Notes** | - | - | | $824.3 | 17.8% |
| **Government Bonds** | $2,578.8 | 67.5% | | $2,361.3 | 51.0% |
| **Other Bonds** | $119.7 | 3.1% | | $252.2 | 5.4% |
| **Loans** | $59.9 | 1.6% | | $201.4 | 4.3% |
| **Equities** | $742.3 | 19.4% | | $627.2 | 13.6% |
| **Real Estate** | $288.5 | 7.6% | | $287.4 | 6.2% |
| **Total** | **3,818.0** | **100.0%** | | **$4,631.1** | **100.0%** |

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

Other than the reduction in the amount held in government debt, notable changes in asset mix between 2017 and 2020 are:

a) Loans and bonds: A large portion of the loans and other bonds in 2017 were to statutory bodies and most of these were settled as part of government's debt restructuring.

b) Equities: Increase in dollar value due to unrealized gains as no new funds were placed internationally since 2009 due to Central Bank restrictions.

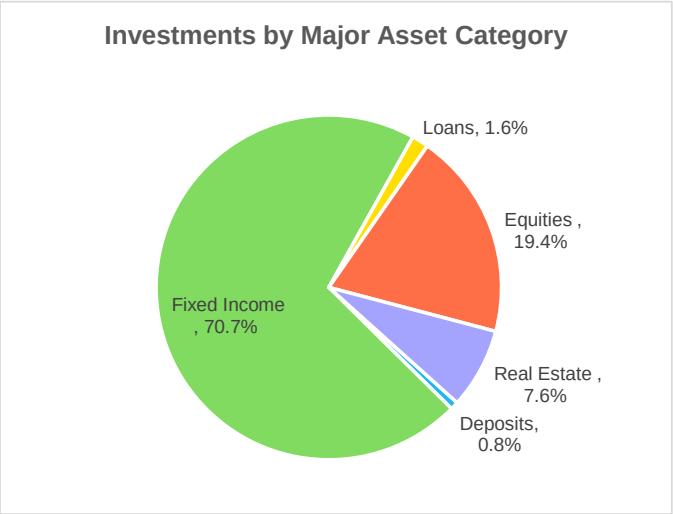
The Investment Policy Statement which guides National Insurance Fund investments was last revised in January 2020. Among other things, the Policy sets out investment objectives and guidelines for the Fund and a strategic asset allocation. The following table shows the actual asset mix as of December 31, 2020, compared with the target allocations found in the Investment Policy.

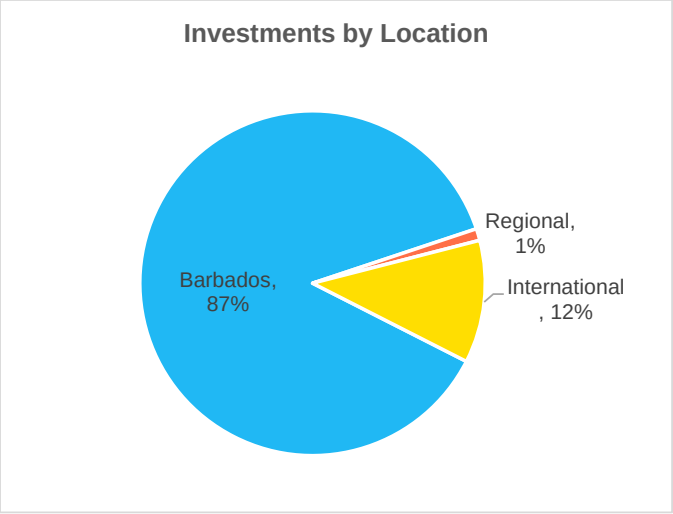
**Table 1.8. Asset Mix Compared to IPS Strategic Allocation, Dec .2020**

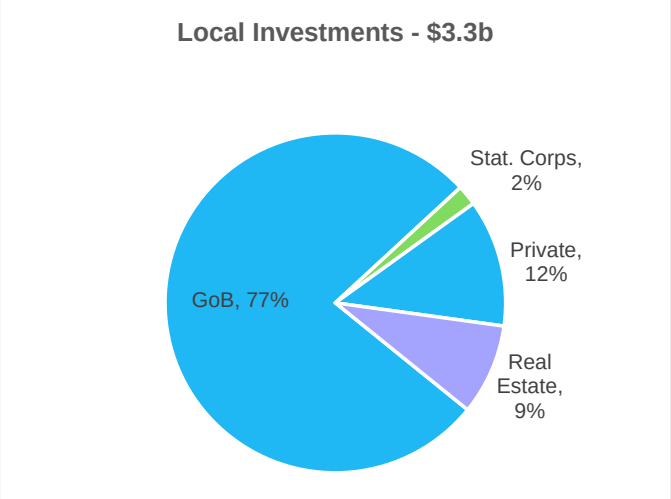
| Investment Class | Actual | Target | Variance |
|---|---|---|---|
| **Money Market** | 0.8% | 5% | Well under |
| **Fixed Income** | 72.2% | 57.5% | Well over |
| **Equities** | 19.4% | 22.5% | Slightly under |
| **Real Estate** | 7.6% | 8% | In line |
| **Alternatives** | 0.0% | 7% | Significantly under |

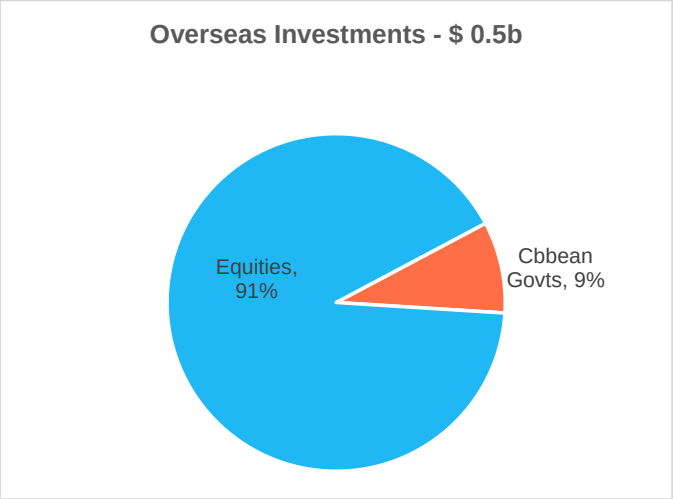
Diversification is a critical component for the investment of social security assets. How well investments are diversified is often assessed using four criteria:- (i) across various asset classes, (ii) across maturities consistent with projected cash flows, (iii) across different locations and (iv) by issuer of the underlying securities. The following charts illustrate the diversification of NIF investments as of December 2020. With 69% of assets held in public sector (government and SOE) securities, and 87% invested in Barbados, NIF assets are not well diversified.

**Figure 1.4. Investments, December 2020**



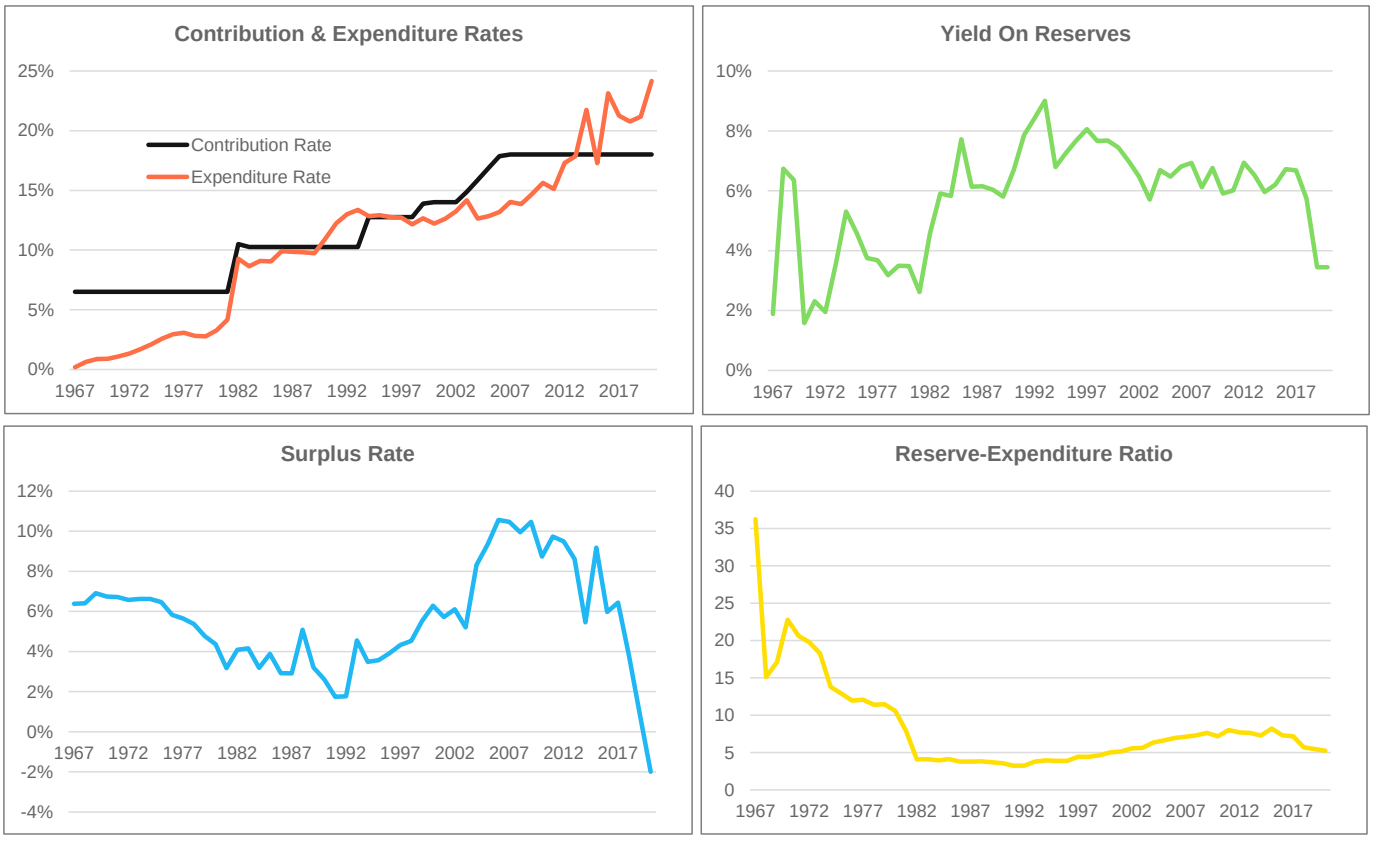
# Chapter 2 Assessment of Performance & System Design

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 – 2020

Experience for key financial factors from 1967 to 2020 is presented in the following charts:

**Figure 2.1. National Insurance Financial Experience**




As a partially funded social security system matures total expenditure as a percentage of insurable earnings gradually increases. In all but one year since 2014, expenditure has exceeded contribution income thus requiring a portion of investment income to help meet expenditure.

After many years of high-yielding debentures comprising a large portion of Fund investments, yields have fallen temporarily as restructured bonds have lower yields.

The main consequences of expenditure exceeding contributions and low investment returns, are illustrated in the two lower charts:- a sharp decline in the surplus ratio and a decline in the reserve-expenditure ratio. The surplus ratio, which represents net cash flows relative to total insurable earnings increased significantly after Pension Reform but has declined sharply since 2016. In the 3-year review period, the surplus ratio averaged 0.9%.

The reserve-expenditure ratio, which increased following several contribution rate increases between 1994 and 2006, has steadily declined since 2016. 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 15th, 16th, and 17th Actuarial Reviews along with a brief analysis of the changes that have occurred.

**Table 2.1. National Insurance Performance Indicators**

| | 2014 | 2017 | 2020 | Comments |
|---|---|---|---|---|
| 1. Avg. Contribution Rate | 18.0% | 18.0% | 18.0% | No change since 2006 |
| 2. Expenditure Rate | 21.7% | 21.3% | 24.1% | Higher in 2020 due to reduced insurable earnings |
| 3. Benefits as % of GDP | 6.6% | 6.6% | 8.7% | Higher in 2020 due to reduced GDP |
| 4. Reserve-Expenditure Ratio | 7.3 | 7.2 | 5.3 | Recent sharp decline due mainly to debt restructuring |
| 5. 3-year average nominal yield on reserves | 6.5% | 6.3% | 5.1% | Lower yields due mainly to debt restructuring |
| 6. Administrative Expenses (3-yr average) as:<br>▪ % of Contributions<br>▪ % of Insurable earnings | <br>5.3%<br>0.95% | <br>12.8%<br>2.30% | <br>5.2%<br>0.94% | Depreciation of the IT/Admin system upgrade resulted in higher costs in 2016 to 2018. |
| 7. # of Contributors Per Pensioner | 2.8 | 2.4 | 2.2 | Reducing due to both increasing number of pensioners and reducing number of contributors |
| 8. Avg. OACP as % of Avg. Insurable Wage | 48% | 46% | 47% | Relatively steady over the past 6 years |

Note: Some amounts may vary from the 16th Actuarial Review due to revised data.

Due to reduced employment and total wages in 2020, some 2020 indicators are higher/lower than would be expected during a year of "normal" employment. The general trends, however, for all indicators are consistent with prevailing economic conditions and expectations for an aging social security system.

## 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 95% of NIF benefit expenditure in 2020. 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 (SEPs), 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 less than 20% of SEPs contribute. The large coverage gap among SEPs was exposed during 2020 when government provided direct income support to SEPs whose income was affected due to the effects of COVID-19.

Approximately 15% 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:

i. Current adequacy: Are pensions adequate today?

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

**Current Adequacy**

The minimum contributory pension, effective January 2020, is $243 per week or $1,052 per month, approximately 36% 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 potentially between 24% 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 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. 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 15 to 20 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 few 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, the economic fallout from COVID-19, 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 were given to the Board on human resource matters and the conducting of financial audits.

# 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 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.

Barbados has experienced net out-migration for decades while fertility rates declined, and life expectancy continues to increase. Since 2016, the number of deaths has exceeded the number of births each year. The Barbados Statistical Service estimates that the population declined from 277,821 at the 2010 Census to 272,300 in 2019.

## 3.1 Population Projections

### 3.1.1 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. Assumptions for 2010 to 2019 were selected to closely match births, deaths, and total population changes during the period.

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 35% between 2001 and 2019. For projections after 2019, a constant TFR of 1.5 is assumed.

Using blended rates taken from the United Nations Latin American mortality table and pensioner mortality rates from the 2018 Canada Pension Plan actuarial valuation, current population estimates and the number of deaths in the past few years suggest life expectancy at birth in 2020 of around 76.8 for males and 81.2 for females. Improvements in life expectancy are assumed.

The third factor that affects population size is migration. This is the most volatile and most difficult to measure. Using the 2010 census and 2019 population estimates, along with reported births and deaths, implied net out-migration is estimated at 900 per annum between 2010 and 2019. Net out-migration is assumed to continue until the late 2020's.

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**

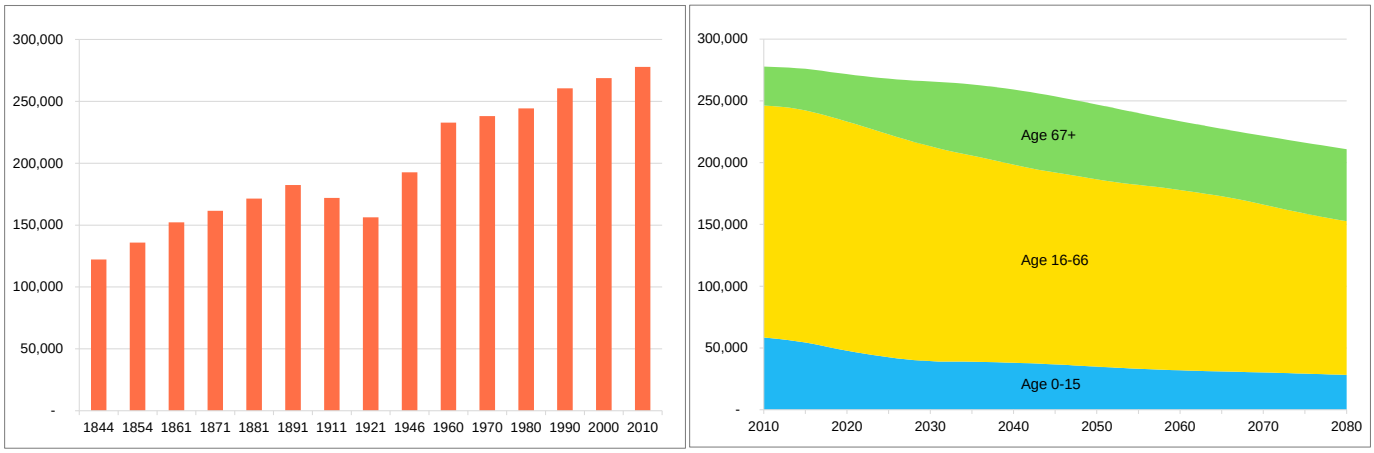
| | | 17th Actuarial Review | 16th Actuarial Review |
|---|---|---|---|
| **Total Fertility Rate** | | 1.5 in all years | 1.45 in 2017 increasing to 1.5 in 2025 |
| **Mortality Improvements^** | | Slow | Slow |
| **Net In-Migration Per Annum (p.a.)** | | -890 from 2010 to 2020 increasing to +200 p.a. in 2030, increasing to 400 p.a. in 2050, constant thereafter | -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 |
| **Real GDP Growth Rates** | 2021 to 2026 | 3.3%, 8.5%, 3.0%, 2.0%, 1.5%, 1.0% (IMF estimates) | -0.5%, -0.1%, 0.6%, 1.5%, 1.8%, 1.8% (IMF estimates for 2018 to 2023) |
| | Up to 2039 | 0.5% | 1.25% to 0.5% |
| | 2040+ | 0.25% | 0.25% |
| **Real Increase in Wages** | | 1.0% | 0.75% |
| **Long-term Inflation** | | 2.5% | 2.25% |

^ UN mortality improvement rates

### 3.1.2 Projection Results

The two charts in Figure 3.1. below illustrate Barbados' population from 1844 to 2010 and the projected population up to 2080 under the assumptions presented above. The last national census was held in 2010.

**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 numbers of children and working-age persons are projected to decrease over time, the elderly population is expected to increase. These projections show a significantly smaller and older projected population than presented in the 16th 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, 2021, with provisions made for the lone reform that will be fully phased in in 2023.

### 3.2.1 Assumptions

Key National Insurance assumptions are shown below.

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

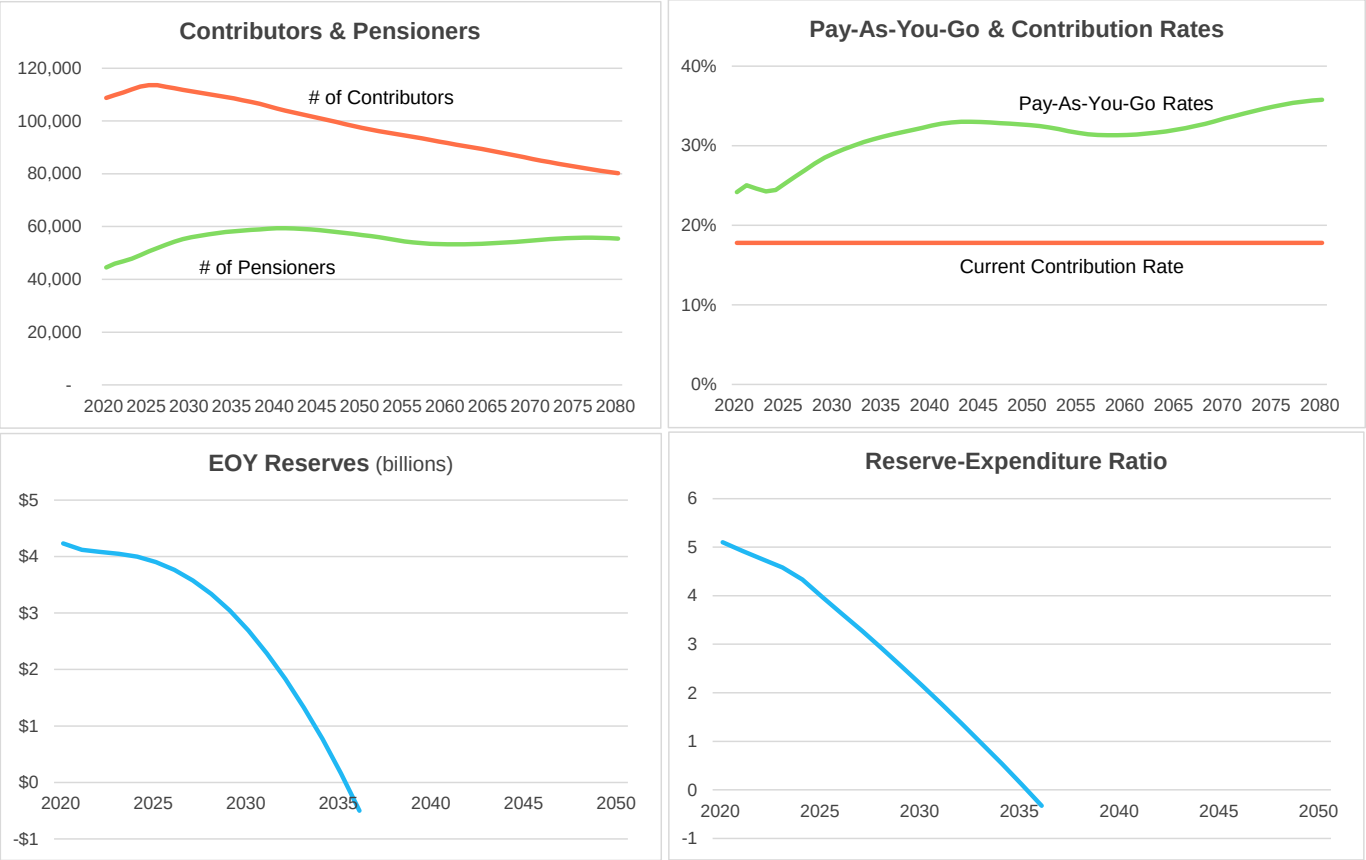
| | 17th Actuarial Review | 16th Actuarial Review |
|---|---|---|
| **Avg. Contribution Rate** | 17.8% in all years | 17.8% in all years |
| **Insurable Wage Ceiling increases** | Annually by the change in the wage index | Annually by the change in the wage index |
| **Short-term Benefits** | 1.05% of Insurable Earnings | 1.2% of Insurable Earnings |
| **Pension Increases** | Annually by lower of 3-year average change in prices and wages (2.5% in most years) | Annually by lower of 3-year average change in prices and wages |
| **Yield on Reserves** | 3.0% in 2021, 5.0% in 2022 to 2029, 4.5% from 2030 | 4.5% in 2018, 3.5% in 2019 to 2021, 5.0% from 2022 |
| **Other Income** | 0.5% of Contribution Income | 0.5% of Contribution Income |
| **Administrative Expenses** | 1.1% of Insurable Earnings | 1.2% of Insurable Earnings |

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, reserves considered available for the payment of future obligations include cash, investments and amounts due from other NIS-managed Funds which total $4.23 billion at the start of 2021. (See Table 1.6)

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



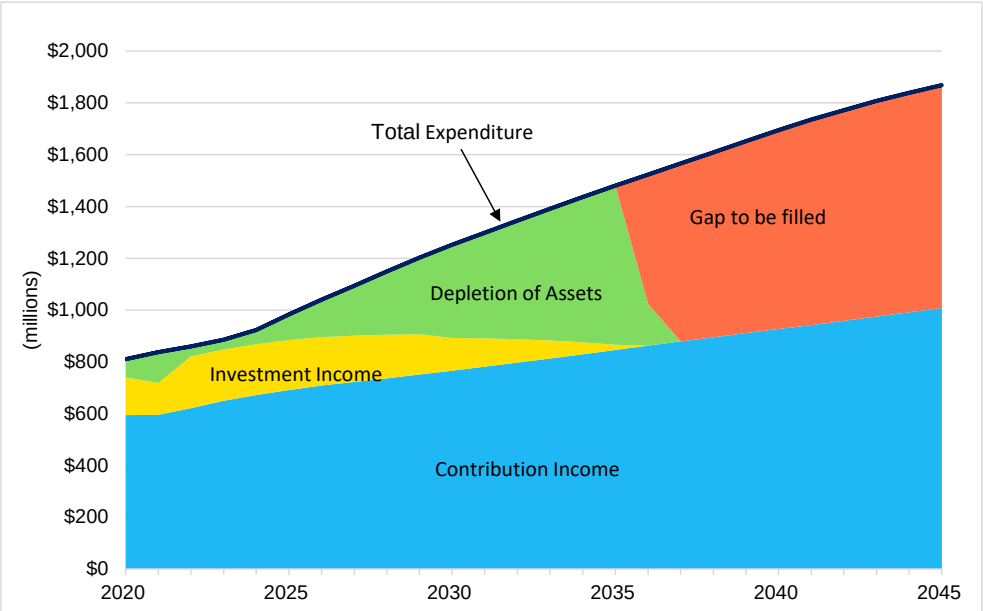

The key results of these projections are summarised as follows:

1. Expenditure will exceed contribution income in each year.
2. Cash flow deficits (total expenditure greater than total income) will occur in each year.
3. Reserves are projected to be exhausted in 2036.
4. In 2036 when reserves are exhausted, annual expenditure relative to total insurable earnings (pay-as-you-go rate) will be between 31% and 32%. The contribution rate will therefore have to be increased to this level to meet total expenditure.
5. 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 30.5%.
6. The number of contributors for each pension in payment is expected to fall from 2.4 in 2020 to 1.4 in 2080.

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 2.1.

The following chart illustrates how the sources of financing expenditure will change as the Fund moves from a state of expenditure being 36% more than contributions in 2020, to 77% more than contributions when all reserves are exhausted in 2036.

**Figure 3.3. Sources of Financing Expenditure, 2020 to 2045**




1. In 2020, expenditure exceeded contributions plus investment income and thus a portion of assets (green) was required to meet expenditure.
2. With total expenditure (black line) exceeding contributions (blue) plus investment income (yellow) in all years, assets (green) will have to be liquidated to help meet expenditure.
3. As more and more assets are sold to meet expenditure they will eventually run out (2036). If the contribution rate is not increased, the income shortfall (orange) in 2037 is estimated at 13.9% of insurable earnings. The required contribution rate would then have to be 31.7%.

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 | Cash Inflows | | | | Cash Outflows | | | Reserves | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Contributions | Investment | Other | Total | Benefits | Admin. & Other | Total | Surplus/ (Deficit) | End of Year | R-E Ratio |
| **2021** | 595 | 123 | 3 | 721 | 800 | 37 | 837 | (116) | 4,119 | 4.9 |
| **2022** | 621 | 200 | 3 | 824 | 821 | 38 | 859 | (35) | 4,084 | 4.8 |
| **2023** | 649 | 198 | 3 | 851 | 844 | 40 | 885 | (34) | 4,050 | 4.6 |
| **2024** | 672 | 196 | 3 | 871 | 881 | 42 | 923 | (51) | 3,999 | 4.3 |
| **2025** | 691 | 193 | 3 | 888 | 940 | 43 | 983 | (95) | 3,904 | 4.0 |
| **2026** | 708 | 187 | 4 | 899 | 996 | 44 | 1,039 | (141) | 3,763 | 3.6 |
| **2030** | 766 | 126 | 4 | 896 | 1,204 | 47 | 1,251 | (355) | 2,688 | 2.1 |
| **2040** | 926 | (145) | 5 | 786 | 1,637 | 57 | 1,694 | (908) | (3,753) | -2.2 |
| **2050** | 1,095 | (691) | 5 | 409 | 1,938 | 68 | 2,006 | (1,597) | (16,515) | -8.2 |
| **2060** | 1,308 | (1,589) | 7 | (274) | 2,224 | 81 | 2,305 | (2,579) | (37,397) | -16.2 |
| **2070** | 1,553 | (3,094) | 8 | (1,534) | 2,820 | 96 | 2,916 | (4,450) | (72,541) | -24.9 |
| **2080** | 1,845 | (5,687) | 9 | (3,833) | 3,596 | 114 | 3,710 | (7,543) | (133,007) | -35.9 |

*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 |
| **2018** | 547 | 74 | 32 | 12 | 32 | 11 | 19.5% | 6.9% |
| **2019** | 575 | 77 | 35 | 9 | 44 | 13 | 20.2% | 7.1% |
| **2020** | 609 | 79 | 36 | 8 | 35 | 10 | 23.2% | 8.7% |
| **2021** | 627 | 81 | 37 | 8 | 37 | 11 | 23.9% | 8.5% |
| **2022** | 643 | 84 | 37 | 7 | 38 | 12 | 23.5% | 7.9% |
| **2023** | 663 | 87 | 37 | 6 | 40 | 12 | 23.2% | 7.8% |
| **2024** | 695 | 90 | 38 | 5 | 41 | 12 | 23.4% | 7.9% |
| **2025** | 746 | 95 | 39 | 4 | 42 | 13 | 24.2% | 8.1% |
| **2026** | 794 | 100 | 41 | 3 | 44 | 14 | 25.0% | 8.4% |
| **2030** | 977 | 117 | 45 | 1 | 47 | 15 | 28.0% | 9.4% |
| **2040** | 1,349 | 153 | 59 | 0 | 57 | 19 | 31.5% | 10.5% |
| **2050** | 1,599 | 182 | 67 | 0 | 67 | 23 | 31.5% | 10.4% |
| **2060** | 1,806 | 236 | 73 | - | 80 | 28 | 30.3% | 10.1% |
| **2070** | 2,313 | 293 | 85 | - | 95 | 34 | 32.3% | 10.7% |
| **2080** | 3,023 | 317 | 103 | - | 113 | 39 | 34.7% | 11.5% |

*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 (End of Year) | | | | | Total # of Pensioners | Ratio of Contributors to Pensioners |
|---|---|---|---|---|---|---|---|---|
| | | Old Age Cont. | Invalidity | Survivors | Non-Cont. Old Age | Death & Disablement | | |
| **2018** | 114,146 | 31,415 | 4,365 | 3,147 | 2,377 | 284 | 41,588 | 2.7 |
| **2019** | 113,485 | 32,649 | 4,357 | 3,161 | 2,287 | 267 | 42,721 | 2.7 |
| **2020** | 107,523 | 34,076 | 4,335 | 3,168 | 2,197 | 266 | 44,042 | 2.4 |
| **2021** | 109,806 | 35,170 | 4,688 | 3,699 | 1,895 | 307 | 45,759 | 2.4 |
| **2022** | 110,825 | 36,145 | 4,834 | 3,778 | 1,618 | 316 | 46,692 | 2.4 |
| **2023** | 111,924 | 37,244 | 4,943 | 3,845 | 1,373 | 324 | 47,729 | 2.3 |
| **2024** | 113,047 | 38,672 | 5,055 | 3,893 | 1,156 | 331 | 49,107 | 2.3 |
| **2025** | 113,595 | 40,137 | 5,162 | 3,930 | 965 | 337 | 50,532 | 2.2 |
| **2026** | 113,559 | 41,462 | 5,246 | 3,958 | 798 | 342 | 51,806 | 2.2 |
| **2030** | 111,238 | 45,697 | 5,498 | 4,026 | 327 | 358 | 55,906 | 2.0 |
| **2040** | 104,704 | 49,229 | 5,632 | 4,100 | 6 | 367 | 59,334 | 1.8 |
| **2050** | 97,409 | 47,345 | 5,355 | 3,747 | 0 | 348 | 56,794 | 1.7 |
| **2060** | 91,638 | 44,112 | 5,518 | 3,279 | - | 354 | 53,262 | 1.7 |
| **2070** | 85,590 | 45,933 | 5,384 | 3,058 | - | 344 | 54,720 | 1.6 |
| **2080** | 80,206 | 47,568 | 4,630 | 2,971 | - | 299 | 55,467 | 1.4 |

*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 30.5%.

### 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 earnings. 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 2021 – 2080 ($'s in billions)**

| | | |
|---|---|---|
| | 2020 Year-end Reserves^ | $4.2 |
| Plus | PV of Future Contributions | $19.1 |
| Minus | PV of Future Expenditure | ($32.7) |
| Equal | PV of Shortfall | ($9.4) |
| | Actuarial Balance (% of Insurable Earnings) | -8.7% |

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 8.7% of insurable earnings indicates that the average contribution rate would have to be increased to almost 26.5% for the entire period for reserves to last up to 2080.

## 3.3 Comparison with Results of the 16th Actuarial Review

The projection results presented earlier in this chapter differ from those of the 16th Actuarial Review as shown in the following table:

**Table 3.7. Summary Results – 17th Actuarial Review vs 16th Actuarial Review**

| | 17th Actuarial Review | 16th Actuarial Review |
|---|---|---|
| **Expenditure Exceeds Income** | All years | All but 2022 **&** 23 |
| **Reserves Depleted** | 2036 | 2051 |
| **General Average Premium** | 30.5% | 24.3% |
| **Pay-as-you-go rate in 2077** | 35.4% | 26.9% |

The outlook for the NIF in this Review is significantly worse than that of the 16th Actuarial Review due primarily to both the projected population and economy being smaller. Economic experience during 2018 to 2020, the exclusion of arrears contributions from reserves, and projection of contribution income that will be collected in cash only, also contributed to earlier projected depletion of reserves.

Had there been no restructuring of Government debt in 2018, projected fund depletion would have been in 2039 instead of 2036 as now projected under the *Best Estimate* scenario.

## 3.4 Sensitivity Analysis – NIS Factors

Given the extensive set of assumptions required for projecting NIF finances and the length of the projection period, future experience will certainly differ from that projected under best estimate assumptions. To illustrate a reasonable range for the Fund's outlook, projections using two different sets of population, economic and NIS assumptions are presented in the following chapter. However, certain experience factors such as yield on reserves and contribution collection rates, along with design rules, will also impact the Fund's outlook. The change in long-term costs for a single change in several assumptions is shown in the following table.

**Table 3.8. Sensitivity Tests – NIF Factors**

| Assumption | Differs from Best Estimate | Reserve Ratio in 2030 | Reserves Depleted |
|---|---|---|---|
| **Best Estimate** | | 2.1 | 2036 |
| **Long-term Yield on Reserves (5% in 2022-29, 4.5% thereafter)** | +1% | 2.5 | 2037 |
| | -1% | 1.8 | 2035 |
| **Cash Contribution Collections (no effect on benefits)** | +2% | 2.4 | 2037 |
| | -2% | 1.9 | 2035 |
| **Pension Increases** | None | 3.0 | 2041 |
| | 1% lower than best estimate assumptions | 2.5 | 2037 |
| **Average New OACP** | 10% smaller | 2.3 | 2036 |

As shown above, other than suspending pension increases, each change has only a small impact on Fund sustainability. However, positive experience in several factors together, would have greater positive impact.

# Chapter 4 Alternative Scenarios

Best Estimate projections up to 2080 presented in the previous chapter provide estimates of future National Insurance Fund demographics and finances under best-estimate assumptions. Given the uncertainty in forecasting over 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 population and economic developments than to NIS-specific factors such as compliance rates and operating costs, the bases for the alternative scenarios focus more on population size, economic growth and employment.

The *Optimistic* scenario represents one with a slightly larger population, 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*** |
|---|---|---|---|
| **Total Fertility Rate (2020+)** | 1.45 | 1.5 | 1.55 |
| **Net (In) Migration Per Annum (p.a.)** | -1,000 from 2010 to 2020 increasing to -200 p.a. in 2030, increasing to 200 p.a. in 2050, constant thereafter | -890 from 2010 to 2020 increasing to +200 p.a. in 2030, increasing to 400 p.a. in 2050, constant thereafter | -750 from 2010 to 2020 increasing to +400 p.a. in 2030, increasing to 800 p.a. in 2050, constant thereafter |
| **Real GDP Growth Rates (p.a.)** | -0.5% each year | 3.3%, 8.5%, 3.0%, 2.0%, 1.5%, 1.0% (2021-2025)<br>0.5% in 2026 to 2039, 0.25% thereafter | +0.5% each year |
| **Real Increase in Wages (p.a.)** | 0.8% | 1.0% | 1.2% |
| **Inflation (p.a.)** | 2.75% | 2.50% | 2.25% |
| **Contribution Compliance** | 94% | 96% | 98% |
| **Yield on Reserves (3.0% in 2021)** | 0.5% less than *Best Estimate* each year | 5.0% in 2022 to 2029, 4.5% thereafter | 0.5% more than *Best Estimate* each year |

The main population and National Insurance demographic and financial results of the three projection sets are presented below. As expected, the outlook for National Insurance finances is closely linked to the size of the general population and number of employed persons. Given the uncertainty in long-term projections, the charts below extend only 30 years. Key highlights from these projections are:

- The population is expected to decline in each scenario.
- While under all core scenarios, employment levels are expected to increase through 2025, only in the *Optimistic* scenario is it expected to surpass the 124,900 employed persons in 2019.
- Depletion of reserves is projected between 2034 and 2041.
- Pay-as-you-go rates during those years are estimated at between 27% and 33%.

**Figure 4.1. Projection Results – All Scenarios**

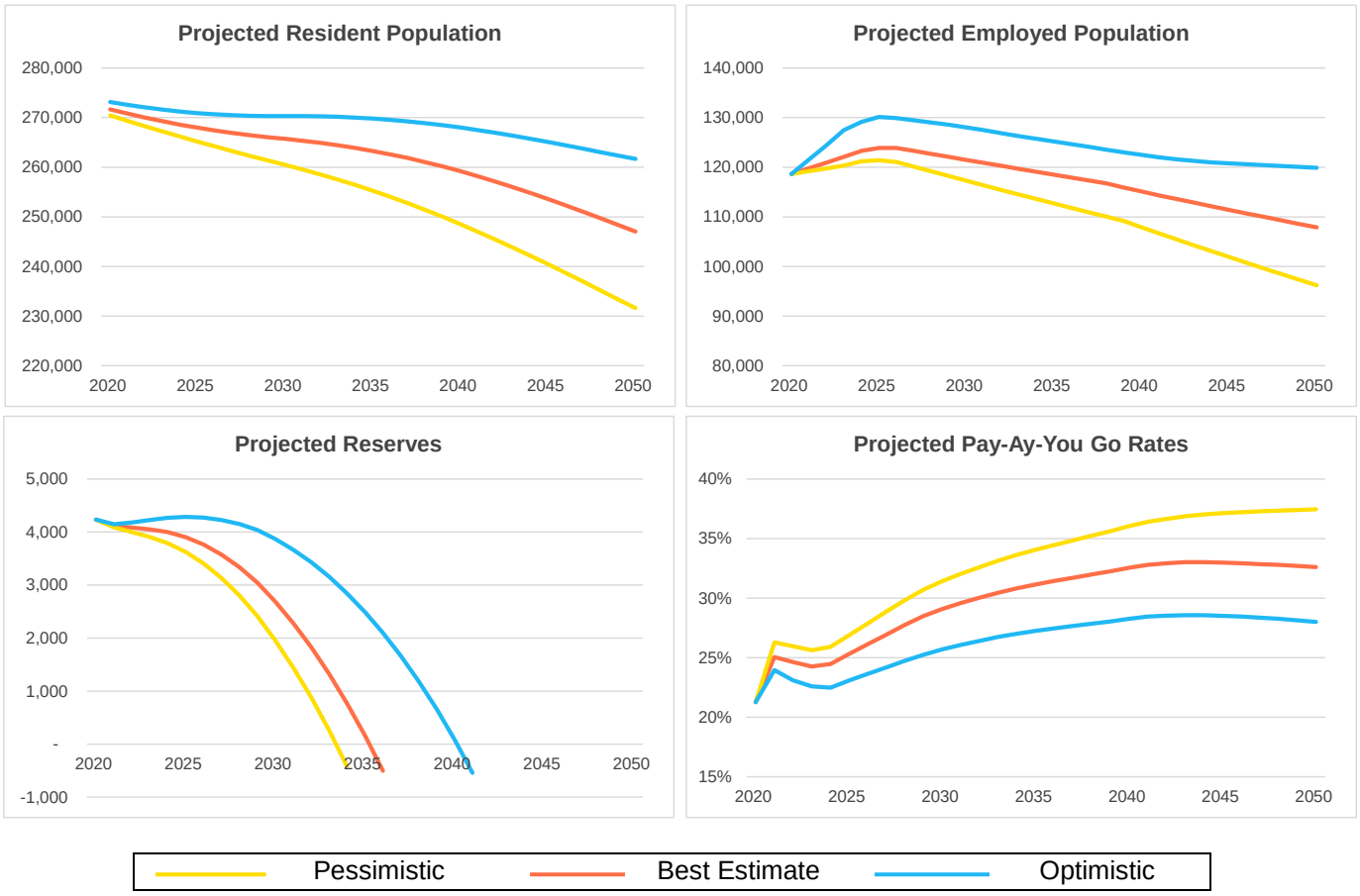


**Table 4.2. Summary Results – All Scenarios**

| | Pessimistic | Best Estimate | Optimistic |
|---|---|---|---|
| **Expenditure Exceeds Total Income** | All years | All years | All years except 2022 to 2025 |
| **Reserves Depleted** | 2034 | 2036 | 2041 |
| **Reserve-Expenditure Ratio in 2030** | 1.6 | 2.1 | 3.3 |
| **Pay-as-you-go rate in 2036 (when reserves depleted under *Best Estimate*)** | 34.5% | 31.4% | 27.5% |
| **# of Contributors per pensioner in 2040** | 1.7 | 1.8 | 1.9 |

As shown in Figure 4.1 and Table 4.2 above, a larger population and workforce produces a more favourable outlook for the National Insurance Fund in several ways: (i) improved cash flows, (ii) reserves positive for an extended period, and (iii) lower pay-as-you-go rates.

# Chapter 5 NIF Sustainability & Reform

A ‘good economy’ is considered the first of the four ingredients necessary for long-term NIS sustainability and relevance. Over the past decade a combination of factors, all outside the control of NIS, has led to the NIF being in a much weaker position than expected. These factors include:

- Declining resident population
- Minimal real economic growth
- Reduction in employment levels
- Negative real wage growth
- Declining yields on investments
- Loss of reserves due to government debt restructuring

The economic fallout from the COVID-19 pandemic further compounded these challenges and it remains uncertain if, or when, pre-COVID levels of employment and total economic outcome will return.

The projected outlook for the NIF is now much different from 2004 when pension reform last took place. The funding target of reserves being at least 5 times expenditure in 2030 is no longer possible. In fact, at the end of 2020, reserves excluding private sector contribution receivables, were only 5.3 times expenditure in 2020 and Fund depletion is now projected for the late 2030’s.

To return the NIF to a more favourable outlook, the NIB together with the Social Partnership will once again need to focus on things that it can control. This will include the implementation of reforms and new strategies that will not only enhance future NIF future finances, but also enhance confidence among contributors of the Fund’s ability to meet its obligations to future generations. The focus of these urgent and important reform discussions should be the other three ingredients for long-term sustainability:

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, benefit payments, reliable and timely reporting to stakeholders.
3. Honest & responsible government (good governance) – proactive and prudent decision making in the best long-term interest of Barbados at all governance levels.

The recommended first step for reform discussion is the creation of three new policies and the periodic update of the existing Investment policy. Together, these four inter-connected policies aimed at both preventing undesired outcomes and responding appropriately to actual outcomes, can provide a governance framework in which policymakers are outcome-focused in their decision making.

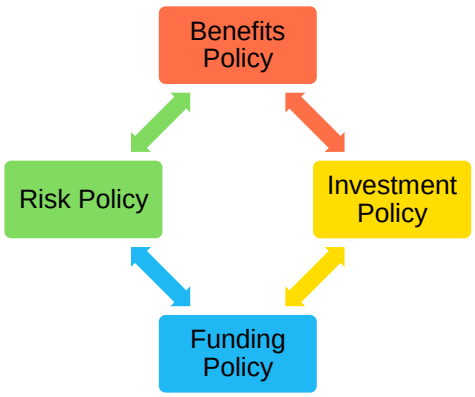
**Figure 5.1. Interconnected Policies for Relevant & Sustainable NIS-Managed Funds**

**Benefits Policy**

- What are we trying to accomplish?
- What are we trying to avoid?
- Where objectives conflict, what are our priorities?

**Funding Policy**

- What are we trying to accomplish?
- What are we trying to avoid?
- Where objectives conflict, what are our priorities?




**Risk Policy**

- Potential risks
- Prior incidents
- Likelihood of occurrence
- "Treatment Plan" – how to avoid & how to handle
- Track risk management successes & failures

With the above policies in place, the NIS would then be able to adopt an outcome-focused approach to decision making, where it is designed and managed around objectives, preferences and "what ifs". Instead of hoping for positive results, leaders should prepare rational responses to specific potential outcomes such as severe economic downturns, natural disasters and the next pandemic.

**Investment Policy**

- Where to invest?
- How will conflicting investment objectives (yield, liquidity, safety, social utility) be balanced?
- What if we suffer losses?

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

## 5.1. Funding Policy

One of the key decisions made during 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, and with a pessimistic population and economic outlook, this target is not attainable at current contribution rates and benefit provisions. A new funding target is required.

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 contribution rate adjustment or benefit reduction strategy would be devised.

A new funding policy for the NIF could include the following priorities.

**Figure 5.2. Sample Funding Policy Priorities & Triggers** (figures are illustrative only)

| | |
|---|---|
| Priority # 1 | • Reserves should not be depleted for the next 25 years |
| Priority # 2 | • Reserves no less than 3 times annual expenditure in 10 years |
| Priority # 3 | • The maximum contribution rate shall be 19.5% |
| Priority # 4 | • Any new benefits must be fully funded by additional contributions |

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 that even under an Optimistic scenario, the Fund is projected to be depleted within 20 years and contribution rates of over 30% would be required.

At 18.25% Barbados already has a high NIF contribution rate. Private sector employers and workers also contribute a combined 2% to the Unemployment and Severance Funds. 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. Determining how much more workers and employers are willing to contribute will be critical to further 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.

Old-Age Contributory Pensions (OACP) are considered generous and currently represent 78% of total benefit costs. Therefore, any meaningful change to future pension costs must focus primarily on OACP 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 pay-as-you-go costs for pensions into two fractions and four components.

**Figure 5.3. Components of The Age Pension Pay-As-You-Go Rate**

$$\text{Expenditure as a \% of Insurable earnings } \textit{(pay-as-you-go rate)} = \frac{\text{Total Pension Expenditure}}{\text{Total Insurable earnings}}$$

$$= \frac{\text{\# Pensioners x Avg. Pension}}{\text{\# Contributors x Avg. Ins. Wage}}$$

$$= \frac{\text{\# Pensioners}}{\text{\# Contributors}} \times \frac{\text{Avg. Pension}}{\text{Avg. Ins. Wage}}$$

*Demographic Ratio* *Replacement Ratio*

To reduce future pay-as-you-go rates, at least one 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 5.1. Options for Reducing Long-term Pension Costs**

| | Demographic Ratio | Replacement Ratio |
|---|---|---|
| **Economic growth** | √ | √ |
| **Award pensions at a later age** | √ | |
| **Make it more difficult to qualify** | √ | |
| **Reduce average new pension amount (slower pension accruals, progressive accrual rates, longer period for average wages, career average formula)** | | √ |
| **No, or smaller, pension increases** | | √ |

Table 5.2 below provides a list of specific reforms that could be made to Old Age Contributory pensions with the ultimate goal of:

i. Reducing the average new pension amount;
ii. Reducing the number of new awards; and
iii. Reducing the rate of increase of pensions already in payment.

**Table 5.2. Reform Options for Reducing Long-term OACP Costs**

| Reform Measure | Current Provision | Possible Changes |
|---|---|---|
| **Age for unreduced pension** | ▪ 67 | ▪ 68<br>▪ 69<br>▪ 70 |
| **Age first eligible for reduced pension** | ▪ 60 | ▪ 62<br>▪ 65 |
| **First age pension awarded if still employed** | ▪ 67 | ▪ 68 to 70 with or without a threshold below which pension could be payable |
| **Maximum benefit rate** | ▪ 60% of best 5-year average insurable earnings (IE) | ▪ 60% of best 10-year avg. IE<br>▪ 50% of best 5-year avg. IE |
| **How quickly maximum rate is reached** | ▪ 35 years | ▪ 40 years<br>▪ 45 years |
| **Benefit Accrual Rate Schedule** (minimum rate and path to maximum rate) | ▪ 2% for each of first 20 years. 1.25% per year thereafter | ▪ 2% for first 10- years plus 1.3% per year thereafter<br>▪ 1.5% for each year |
| **Make the pension formula explicitly progressive – lower pension rate for higher income levels** | ▪ Same benefit rate applies to all income levels | ▪ Lower benefit rate for income above a certain amount.<br>(e.g., 50% of first $3,000 + 40% of any excess) |
| **Minimum contribution requirement** | ▪ 500 weeks (10 years) | ▪ 600 weeks<br>▪ 750 weeks |
| **Reduction factor for early pensions** | ▪ ½% per month | ▪ 2/3% per month<br>▪ ¾% per month |
| **No or smaller pension adjustments** | ▪ Lower of the previous 3-yrs average price inflation and previous 3-yrs average change in wage index | ▪ 50% of current formula<br>▪ Increase every other year by current formula without a “catch-up”<br>▪ No increase for 5 to 10 years |

### 5.2.1 Increasing Pension Age

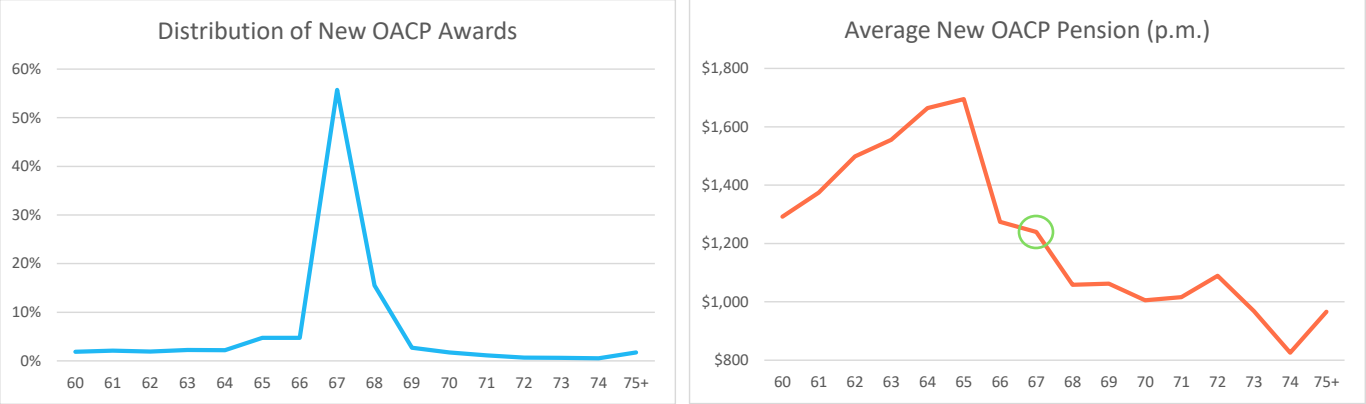
The Old-Age Contributory Pension is now available at ages ranging from:

- The NIS pensionable age – now 67;
- Voluntary pensionable age – any age between 60 and 66; and
- Late retirement age – any age after 67 up to 70.

To qualify for an early pension, one must have retired from employment. Pensions awarded prior to age 67 are reduced by ½% for each month under 67 while if awarded after the 67th birthday, the amount is increased by ½% per month older than 67 up to a maximum of 36 months.

The age distribution of new Old-Age Contributory Pensions and the average new pension amount in 2019 and 2020 are shown below.

**Figure 5.4. New OACP Awards, 2019 & 2020**




The left chart above shows that almost 60% of new awards occur at age 67. Increasing the age at which pensions are awarded was one key objective of pension reforms made almost twenty years ago. The low take-up of pensions prior to age 67 indicates that most workers either keep working until age 67 or elect to wait until the full pension is available, if they stop working sooner. Waiting for full pension could be an indication that they have adequate levels of income up to that point.

The right chart shows that the average new pension increases as age increases up to 65, then falls off sharply thereafter. This suggests that most of the persons who claim early pensions may have higher incomes and/or longer service than the majority of workers who claim at age 67.

Although increasing the first voluntary pension age from 60 to say 62 will have minimal impact on reducing long-term costs, it should be considered. If adjusted to 62, the gap between the first voluntary age and pensionable age should be fixed at 5 years so that it is automatically adjusted if pensionable age is increased above 67.

### 5.2.2 Contingent Benefits and Automatic Adjustment Stabilizers

Recommendations made above, call for individual Benefits and Funding Policies. However, these two polices 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 5.3. Contingent Benefits and Automatic Adjustment Stabilizers**

| Contingent Benefits | Automatic Stabilizers |
|---|---|
| ▪ Pension increases deferred for several years if certain conditions/targets not met<br>▪ 90% of the regular new pension amount is guaranteed but the remaining 10% is only paid if projections meet certain targets | ▪ If projections fall short of minimum funding levels or required contribution rates exceed set rates, benefits have to be reduced so that objectives are met. For example:<br>○ Pensionable age will increase<br>○ Negative adjustment for pension amounts for new awards |

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.

### 5.2.3 Paternity Benefit

Paternity leave along with an NIS Paternity benefit are currently being considered by Government. Anguilla is the only Caribbean country which currently provides paternity leave in labour legislation, and a complementary social security paternity benefit. Following are highlights of the paternity leave and benefits in Anguilla:

**Table 5.4. Paternity Benefit Eligibility and Entitlements**

| Labour law Eligibility & Entitlements | Social Security Eligibility & Entitlements |
|---|---|
| • Father of the baby or husband of the baby's mother is eligible for paternity leave but not more than one month in any 12-month period.<br>• Leave must be taken between the day of birth and 16 weeks after.<br>• Maximum leave is 4 consecutive weeks with the employer obligated to pay for at least 2 of those weeks.<br>• The amount payable is basic wage/ remuneration less the amount payable as a Social Security Paternity benefit. | • Payable to the father of the baby or husband of the baby's mother who has been granted paternity leave.<br>• Payable for 2 consecutive weeks between the date of confinement and 16 weeks following the child's birth.<br>• Benefit rate 65% (same as for maternity) |

If the NIS wishes to add a Paternity benefit it should be added following the inclusion of paternity leave provisions in labour law. Further, since NIS benefits are intended to replace lost income, a new Paternity benefit should only be paid if the father loses income because he elects, or is required, to stay away from work to care for his new baby.

The Employment of Women (Maternity Leave) Act provides for at least 12 weeks' maternity leave. The maximum or minimum duration for paternity leave has not yet been confirmed but it is expected to be substantially less than 12 weeks.

The current NIS Maternity benefit rate is 100% and the maximum benefit period is 12 weeks. Should the NIS add a Paternity benefit, following are three specific recommendations:

(a) the benefit rate for Maternity benefit, 100%, should also apply for the new Paternity benefit;

(b) the benefit should only be paid if the man is off from work and losing all or a portion of his wages; and

(c) the maximum payment period for the NIS Paternity benefit should be consistent with the maximum paternity leave permitted in new legislation.

No Paternity grant should be considered as the Maternity grant already allows for the husband's contributions to be used if the mother did not meet the qualifying conditions.

Under the assumption that the rate for Paternity benefit will be 100%, the cost of a Paternity allowance/benefit would be linked to two factors – the maximum duration and the percentage of fathers who will claim the allowance. Maternity benefit payouts averaged almost $8 million in the last three years and the average duration of around 11 weeks. Although no indication as to what the maximum duration for Paternity Leave would be, a much shorter maximum duration is expected.

Approximately 60% of births result in the payment of a Maternity benefit. Given that the employer is not required to top up earnings while on maternity leave, it can be assumed that this requirement will also not apply for paternity leave. Therefore, the portion of new fathers that will give up a portion of their pay to stay home will be lower than for new mothers. Even if they were to receive 100% of regular pay, the proportion of fathers expected to claim a paternity benefit would likely be much less than the female take-up rate. On average, men earn more than women and therefore the average weekly allowance will likely be up to 10% higher for Paternity benefit than for Maternity benefit.

Following are cost estimates for a Paternity benefit under several scenarios, all of which assume that eligible males earn 10% more than eligible females.

**Table 5.5. Projected Paternity Benefits**

| **Portion of births with a Paternity benefit claim** | **10% of Births** | | **30% of Births** | |
|---|---|---|---|---|
| **Avg # weeks paid** | 2 | 4 | 2 | 4 |
| **Estimated Costs** | $320,000 | $640,000 | $960,000 | $1,920,000 |

$1,000,000 of benefit costs is approximately 0.03% of insurable earnings so the estimates above range from 0.01% to 0.06% of insurable earnings. By comparison, Maternity benefit costs have averaged 0.23% of insurable earnings in recent years.

## 5.3. 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. The NIF's IPS was last updated in January 2020. Following debt restructuring, the GOB committed to paying all of its contributions in cash and thus no new debt securities are expected. Further, no cash flow surpluses are projected.

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 participating in projects where its liquidity needs in the next twenty 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 Fund 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 investments 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.

## 5.4. Risk Policy

The projections presented earlier indicate that under current contribution rate and benefit provisions the NIF will be depleted within the next 20 years. Specific measures to delay Fund depletion have been presented above. There remains, however, several risks that could result in Fund depletion even sooner than projected as well as NIF not providing adequate benefits to residents. Many of these risks are briefly discussed in the following table. The Board is encouraged to establish a formal Risk Policy that identifies the various risks that could result in the NIF not meeting its objectives or the Fund to fall short of the projections presented in this report as well as, include rational responses to events that may occur.

**Table 5.6 Risks & Risk Mitigation Strategies**

| Risk Item | Mitigation Strategies/Reactions |
|---|---|
| **Inadequate cash to meet benefit obligations** | • Regularly update cash flow projections with worst case scenarios<br>• Appropriate levels of liquid assets at all times |
| **Fund depleted sooner than projected** | • Funding policy (when and by how much to increase contribution rate and make other adjustments)<br>• Better compliance<br>• Higher rate of return on investments with appropriate risks<br>• Benefits policy (appropriate benefits each with relevant qualifying conditions and benefit formula and amount) and reforms where appropriate<br>• Lower administrative costs |
| **Growing # of elderly without a pension** | • Better enforcement of compliance among both businesses/employers and self-employed persons |
| **Benefits being inadequate** | • Unlikely, given generous pension accrual rates and regular pension adjustments to offset the effect of inflation. The main concern would be for self-employed persons with short contribution histories. |
| **Inability to convert investments into cash if needed** | • Could prove challenging for GOB debt and real estate holdings |
| **Unexpected call on NIF to provide income support (e.g., transfers to other funds)** | • Pre-identified maximum amount that can be transferred to other Funds for unexpected purposes |

This list of risks is not exhaustive, but it includes several high-level issues that could negatively affect the NIS and Barbados. It is recommended that the Board develop a Risk Management Policy which documents its level of exposure to the respective risks, explains the tolerance for such risk, and includes the measures and strategies to mitigate risk to the extent possible.

## 5.5. Administration/Governance

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

**Table 5.7. NIS Administrative & Governance Challenges**

| | |
|---|---|
| **Self-employed coverage** | ▪ 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. (See section 5.5.1 below) |
| **Administrative Efficiency** | ▪ Lengthy delays in claims adjudication and insufficient communication with insureds and transparency regarding decisions and delays given existing technology. |
| **Reporting** | ▪ Inconsistent and sometimes unreliable financial information and operational performance data available<br>▪ Long delays in the preparation of annual reports and audited financial statements |
| **Management Skills** | ▪ Limits placed on hiring practices and compensation levels of the public sector restrict NIS' ability to attract needed skills and talent. |
| **Board Member Competencies** | ▪ While the guidelines for Board membership focus primarily on who appoints members (government, employers & 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. |
| **Governance** | ▪ 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. The Board has publicly indicated its intention to transition to a full statutory body. |

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.

### 5.5.1 Self-employed & Informal Sector Workers

Previous actuarial reviews have highlighted the relatively low level of participation among the growing self-employed and informal sector. The primary effect of low coverage among these groups is a growing number of elderly persons who will not have a secure pension in old age. COVID-19 related lockdowns and restrictions affected many in this sector and Government felt forced to provide income support to affected persons.

To avoid increasing levels of non-participation among self-employed and informal sector workers, new approaches to reaching informal sector workers is critical. The most effective approach is likely to include:

(a) Make NIS contributions a requirement to obtain government issued licenses and permits or authorization to carry on their respective trade, and
(b) Have severe consequences if they do not have the required permit or license.

Banks, airlines, utilities and other sectors have made significant strides in recent years in how they use technology to interact with their customers to deliver services. These innovations have both reduced costs and afforded customers enhanced opportunities. Living with COVID-19 has also led to a significant shift to more efficient ways of transferring funds between individuals and institutions. Together with various government departments, the NIS should quickly adopt new approaches using available technology to allow its customers, especially informal sector workers, to interact with the NIS.

As it relates to how self-employed persons contribute, the NIS should eliminate the need for forms, specific payments amounts and payments for a specific month and instead adopt a system whereby amounts paid are converted into insurable earnings and contribution weeks for the purpose of determining benefit eligibility and amounts.

# 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 earnings, were transferred to the Unemployment Fund. This reallocation from the Severance Fund to the Unemployment Fund was reduced to ¼% in January 2019 and ended December 2020. As of January 2021, the Unemployment Fund contribution rate was 1.5%. Details of unemployment benefit provisions may be found in Appendix A.

## 6.1 Unemployment Fund Experience

The Unemployment Fund was severely affected by COVID-19 as the falloff in tourist arrivals and lockdown measures resulted in thousands of workers being out of work or working reduced hours/days for varying periods.

The following table shows Unemployment Fund experience from 2018 to 2020 on a cash basis.

**Table 6.1. Unemployment Fund Experience, 2018 to 2020** ($'s in millions)

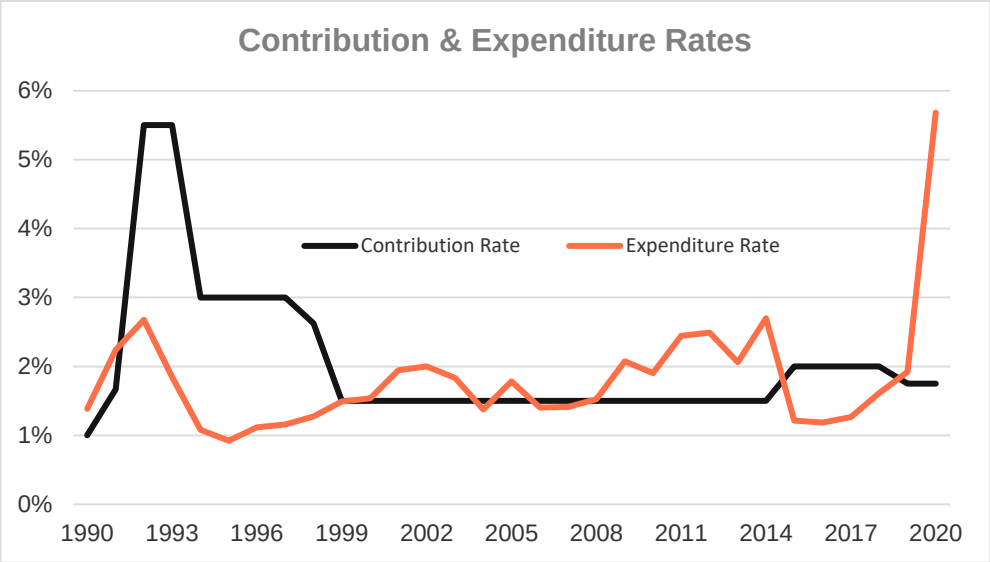
| | 2018 | 2019 | 2020 |
|---|---|---|---|
| **Contribution Income** | 47.3 | 45.0 | 45.4 |
| **Investment Income** | 0.5 | 0.0 | 0.0 |
| **Total Income** | 47.8 | 45.0 | 45.4 |
| **Benefits** | 38.1 | 49.3 | 147.5 |
| **Administrative Expenses** | 2.5 | 2.6 | 2.7 |
| **Total Expenditure** | 40.6 | 52.0 | 150.2 |
| **Excess of Income Over Expenditure** | **7.3** | **(7.0)** | **(104.7)** |
| | | | |
| **Cash + Investments (end of year)** | **55.1** | **41.4** | **12.1** |
| | | | |
| **Effective Contribution Rate** | 2.0% | 1.75% | 1.75% |
| **Benefit Rate (as % of IE)** | **1.61%** | **1.92%** | **5.68%** |

To allow the Unemployment Fund to meet its obligations during 2020, $88 million was borrowed from the National Insurance Fund and $5 million from the Catastrophe Fund.

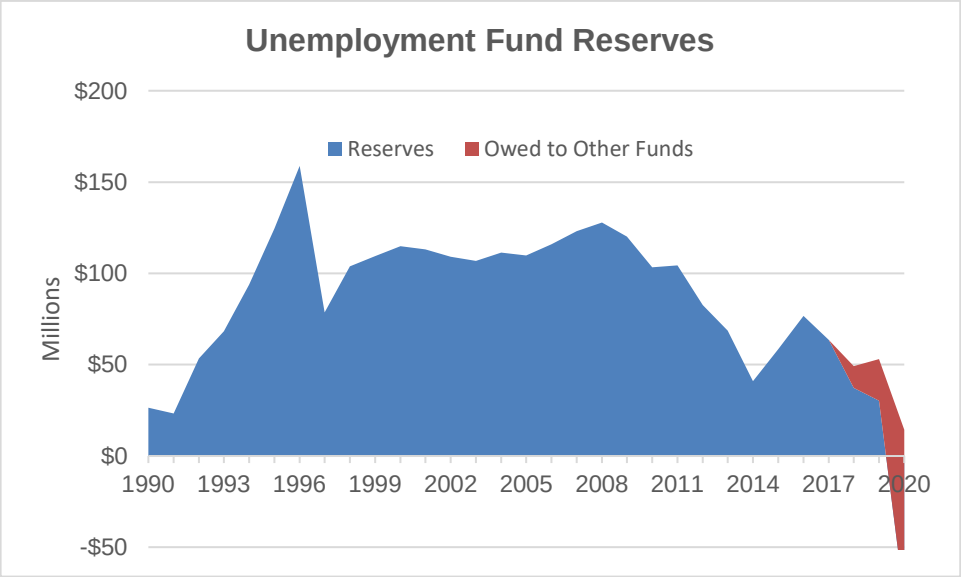
At the end of December 2020, the Unemployment Fund had $12.1 million in cash while it owed the National Insurance and Catastrophe Funds a total of $93.0 million.

The following charts show Unemployment Fund experience for the previous 30 years.

**Figure 6.1 Unemployment Fund Experience, 1990 to 2020**




At an estimated 5.7%, claims expenditure in 2020 was 2.1 times its previous high of 2.7% in 1992 and 2014. Over the 10 and 20 years prior to 2020, Fund expenditure averaged 1.88% and 1.78% of insurable earnings, respectively.




Cash and investments at the start of 2020 totalled $41.4 million. In 2020, $93 million was borrowed from other Funds to maintain Fund solvency. Cash at the end of 2020 totalled $12.1 million.

## 6.2 Funding Future Unemployment Fund Benefits

During the first six months of 2021, the Unemployment Fund borrowed an additional $10 million from the National Insurance Fund and $5 million from the Catastrophe Fund. Therefore, in addition to meeting its regular unemployment benefit obligations, the $108 million borrowed from the National Insurance and Catastrophe Funds must be repaid.

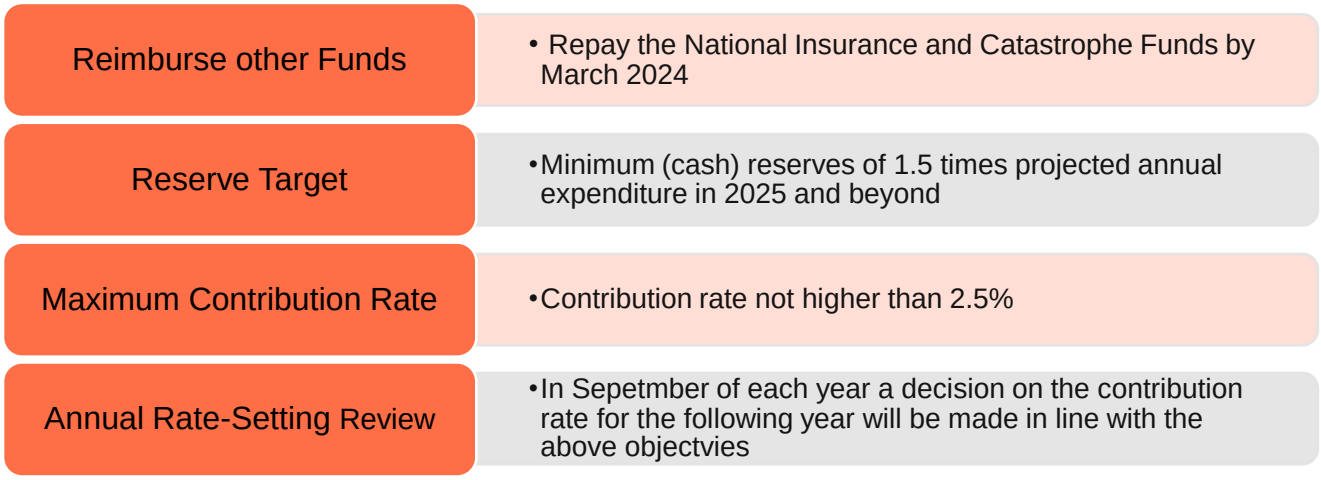
To this end the Government of Barbados will recapitalize the fund with $143 million over its current and next two financial years. While this cash injection should prevent the need for a contribution rate increase, it is strongly recommended that a formal funding policy be established. Such a policy would include specific principles and objectives and then, guided by informed expectations for the coming year, a rate adjustment for the following year would be recommended if considered necessary. The first step in creating such a policy is identifying high level funding goals for the Fund. The following table includes examples of two sets of objectives – (i) what the Fund wishes to achieve and (ii) what the Fund wishes to avoid.

**Table 6.1. Sample Funding Objectives**

| Fund Wishes to Achieve | Fund Wishes to Avoid |
|---|---|
| 1. Sufficient reserves to meet expenditure at all periods during typical economic cycles.<br>2. Contribution rate for employers that is generally stable over time.<br>3. Only having to borrow from other Funds in extreme circumstances. | 1. Fund assets being depleted during typical economic downturns.<br>2. Holding excessive reserves (given the opportunity to borrow from the NIF).<br>3. Increasing the contribution rate during a recession.<br>4. High contribution rate for employers as they recover from effects of Covid-19. |

For the first funding policy, the following targets are suggested for consideration.

**Figure 6.1. Sample Funding Policy Priorities**




During the 10 and 20-year periods prior to 2020, Unemployment Fund expenditure averaged 1.88% and 1.78% of insurable earnings, respectively.

To estimate the additional contribution rate required to provide for a gradual reserve build-up to a desired target, 10-year projections of the Unemployment Fund under the following assumptions have been made:

- Funds available for the payment of benefits as of December 2020 were $12.1 million.
- An extra $8 million in backlog claims is paid in 2021.
- Payments from Government to recapitalize the Fund are $50 million, $35 million, $35 million, and $23 million in 2021 to 2024.
- $36 million is transferred to the National Insurance and Catastrophe Funds each year in 2022 to 2024.
- Insurable earnings remain constant at $2.6 billion.
- 90% of contributions are collected in cash.
- Expenditure ranges between 1.5% and 2.25% of insurable earnings per annum.
- Yield on investments is 0%.
- Administrative costs are 0.1% of insurable earnings.

Based on the results from 10-year projections under the above assumptions, the following spreads between the contribution rate and actual expenditure rates will be required for the Fund to meet the target reserve-expenditure ratio in 2030.

**Table 6.2. Required Spread between Contribution & Expenditure Rate to Meet Funding Target**

| | | |
|---|---|---|
| Minimum Target Reserve-Expenditure Ratio in 2025 and 2030 | 1.5 | 2.0 |
| Excess of contributions over benefit expenditure | 0% to 0.15% | 0% to 0.25% |

Under both target funding levels, a larger spread would be required when annual benefit expenditure is higher. This shows that with the $143 million recapitalization, a large contribution rate increase may not be required.

Given the larger number of persons who qualified for unemployment benefits in 2020, it is likely that payouts in 2022 will be below average. With the required spreads shown above, the current 1.5% contribution rate may provide adequate income to meet expenditure in the short-term. If annual rate-setting reviews as recommended above are adopted, annual contribution rate adjustments aimed at achieving a specific funding target, should not exceed 0.5%.

## 6.3 Unemployment Benefit Self-employed Persons

COVID-19 related lockdowns and restrictions affected many Self-employed persons (SEPs) and Government felt forced to provide income support to affected persons. This support was in the form of a fixed monthly amount for two months. With this experience, the government should consider a permanent unemployment benefit for SEPs, as even though mass unemployment among the sector is unusual, individual SEPs suffer from temporary unemployment for a variety of reasons.

Following is the description of the problem, goals and possible solutions to providing unemployment income to SEPs.

| The Problem to be Solved | Goals & Objectives of UB for SEPs |
|---|---|
| 1. SEPs do experience unemployment but are not currently covered by the NIS for Unemployment Benefit (UB)<br>• Covered for all NIS benefits except Employment Injury, Unemployment & Severance<br>2. Unemployment and lost income result in inability to meet personal and business expenses<br>3. 2019 Labour Force surveys estimates between 21,000 & 26,000 SEPs<br>4. Fewer than 20% contribute to NIS | 1. Trying to Achieve<br>• Temporary income replacement for SEPs following natural disasters, pandemic etc., where significant income reduction expected to last for more than 1 month<br>• Allow SEPs time to restructure his/her business model before being forced to seek formal employment or a new informal activity<br>2. Trying to Avoid<br>• Abuse – income support when have other income<br>• Benefit amount in excess of regular earnings |

**Solutions - Two Unique Approaches and one Hybrid Approach**

| 1.Pooled Fund | 2.Individual Savings Accounts | 3.Hybrid Approach |
|---|---|---|
| • Similar to current unemployment benefit and funding method<br>• Weekly benefit based on either declared earnings or a specific "income band"<br>• Guidelines needed for determination of "unemployed"<br>• Must be fair to all types of SEPs<br>• Same contribution rate as for UF (now 1.5%) | • Mandatory savings while working (could cease when certain level reached)<br>• Can access a certain % of "usual" income if unemployed<br>• Guidelines needed for determination of "unemployed"<br>• Balance available at retirement<br>• Contribute 2.5% to 4% (no risk sharing and could get cash at retirement) | • Mandated to save<br>• Can withdraw from own account if unemployed<br>• If account exhausted, UB from pooled fund for a limited period possible<br>• Contribute at a rate between the other two options |

# Chapter 7 The Severance Fund

The National Insurance Board administers the Severance Payments Fund as established under the Severance Payments Act. The Severance 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. Between January 2015 and December 2018, all Severance Fund contributions were 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. From January 2019 to December 2020 the reallocation was ¼% with the other ¼% is being allocated to the Training Levy. As of January 2021, the full ½% contribution remains with the Severance Fund.

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

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 1.3). The reduction in face amount was $50.3 million.

From January 2020 to June 2021, Severance rebate applications and Severance employer payment applications were both higher than usual as shown in Table 7.1.

**Table 7.1. Severance Fund Applications, 2018 to June 2021**

| | 2018 | 2019 | 2020 | Jan to Jun 2021 |
|---|---|---|---|---|
| **Rebate Applications** | 414 | 903 | 1,011 | 1,383 |
| **Employer Payment Applications** | 632 | 623 | 1,948 | 189 |

The following table highlights Fund income and expenditure for 2018 to 2020. Delays in the appointment of Tribunals and thus hearings have affected the processing of Severance payments and timing of benefit payments.

**Table 7.2. Severance Fund Income & Expenditure, 2018 to 2020 ($'s in millions)**

| | 2018 | 2019 | 2020 |
|---|---|---|---|
| **Contribution Income** | 0.16 | 0.05 | 0.04 |
| **Investment Income** | 9.04 | 3.64 | 3.52 |
| **Total Income** | 9.20 | 3.69 | 3.56 |
| **Benefits (Employer Rebates)** | 6.86 | 7.34 | 2.52 |
| **Administrative Expenses** | 0.63 | 0.65 | 0.76 |
| **Total Expenditure** | 7.50 | 7.99 | 3.28 |
| **Excess of Income Over Expenditure** | **1.70** | **(4.30)** | **0.28** |
| | | | |
| **Employer Payments** | 9.73 | 22.23 | 18.95 |

Employer payments are shown separately as, while the payments are made from the Severance Fund, they are accounted for as a receivable from the employers who did not make the required payment to former employees. During the 3-year review period employer payments were 3 times employer rebates which indicates that many employers fail to make the required statutory payments to severed employees.

Net Severance Fund assets at the end of 2020 are estimated at $107.3 million.

**Table 7.3. Estimated Net Assets, December 31, 2020 ($'s in millions)**

| | |
|---|---|
| **Cash** | $21.3 |
| **Interest Receivable** | $3.2 |
| **Investments** | $88.5 |
| **Benefits Payable** | ($5.7) |
| **Total Net Assets** | $107.3 |

Excluded from net asset estimates are:

- $7.0 million due to the Fund in past-due contributions
- $56.6 million due to the Fund from employers who did not make their required Severance payments, and
- Rebates and benefit payments payable for claims already received but not yet processed and approved.

The number of outstanding Severance rebates and employer payments pending as of December 31, 2020, were 393 and 856 respectively. Based on the average Severance benefit payment (100%) of

$27,000 per claimant, it is estimated that the rebates and employer payments of $26 million are due for pending claims.

Severance Fund investments declined by $95.2 million over the 3-year review period. $50.3 million of the decline was due to Government's debt restructuring in 2018. Table 7.4 shows the asset mix of the Severance Fund as of December 2017 and December 2020.

**Table 7.4. Severance Fund Investments, December 31, 2020 & 2017 ($'s in millions)**

| Investment Type | December 2020 | | December 2017 | |
|---|---|---|---|---|
| | Amount | % of Total | Amount | % of Total |
| **Deposits** | - | - | $8.6 | 4.7% |
| **Treasury Bills & Notes** | - | - | $57.1 | 31.2% |
| **Debentures** | - | - | $111.5 | 60.8% |
| **Series D GOB Bonds** | $2.1 | 2.4% | - | - |
| **Series E GOB Bonds** | $83.9 | 94.8% | - | - |
| **Bonds & Loans** | $2.5 | 2.8% | $5.1 | 3.3% |
| **Total** | **$88.5** | **100.0%** | **$183.3** | **100.0%** |

As shown above, over 97% of Severance Fund investments are in Government of Barbados bonds. Given the large amount of rebate and benefit payments expected for pending claims, most of these bonds may need to be liquidated prior to maturity or exchanged with the National Insurance Fund for cash.

## 7.2 Severance Fund Provisions & Administration

Prior to the COVID-19 pandemic, actuarial reviews questioned the ongoing relevance of the provisions of the Severance Payments Act given the low level of Severance payments and growing reserves. The Act came into force in 1973 and was last amended in 1991. While the Fund's sustainability is now questionable following debt restructuring and higher than normal redundancies due to COVID-19, a comprehensive review of the Fund is still recommended as most of the Fund's payments are made on behalf of employers who failed to meet their obligation, and there is little success in recovering these funds.

Administration of the Severance Fund has faced several challenges that should also be reviewed with the goal of adopting new processes to dealing with each. The primary challenges are:

- Large number of cases submitted to the Severance Payment Tribunal for a hearing.
- An inadequate number of Tribunal hearings to deal with the number of both current and backlog cases.
- The manual process used to verify employer rebates after the employer has made the full Severance payment to the former employee.
- Process used within the Finance Department to account for Severance payments, rebates and receivables is not fully automated.

- Limited success in recovering amounts paid on behalf of employers who fail to make the statutory Severance payment to workers.

Over its almost 50-year history, the Severance Fund has withstood many economic cycles of growth and recession and, more recently, an extreme event that significantly affected employment leading to a spike in redundancies. Barbados is one of a very small group of countries around the world that has a national Severance or Redundancy Fund. The recommended review of the provisions of the Severance Act and how it is administered should therefore begin with a list of key objectives for the Fund and then a determination of whether such a fund remains the best way of meeting those objectives.

The following table includes examples of two sets of objectives for which the social partners can build on as part of the review:- (i) what the Act/Fund wishes to achieve and (ii) what the Act/Fund wishes to avoid.

**Table 7.5. Sample Severance Act/Fund Objectives**

| What is the Act/Fund trying to ACHIEVE | What is the Act/Fund trying to AVOID |
|---|---|
| (a) Severance benefits that are consistent with the current labour market and other income support programs.<br>(b) Sustainable fund - sufficient assets on hand to meet expenditure in normal times as well as during certain unexpected shocks.<br>(c) Contribution rates (for employers) that are generally stable over time.<br>(d) 95% of non-Tribunal cases settled within one month and 95% of Tribunal cases settled within 6 months.<br>(e) Success at collecting amounts due from employers. | (a) Inequitable and/or excess payments to those made redundant.<br>(b) Employers not adequately providing for possible redundancy payments in the future.<br>(c) Employers deliberately failing to make the required Severance payments when they could<br>(d) Lengthy and expensive process for recovering payments from employers in both cash or other types of assets. |

# Statement of Actuarial Opinion

It is our opinion that for this report of the 17th 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.

**LifeWorks**

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Principal

July 22, 2022

# References


1. 15th and 16th Actuarial Reviews of the National Insurance, Unemployment & Severance Funds
2. Financial statements of the National Insurance, Unemployment & Severance Funds
3. Fifth review under the IMF's Extended Arrangement under the Extended Fund Facility for Barbados, IMF, June 2021
4. National Insurance & Social Security Act & Regulations
5. Various reports and publications by the Barbados Statistical Service and Central Bank of Barbados

# 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 earnings has increased since 1967 as follows:

| Period | Weekly | Monthly | | Period | Weekly | Monthly |
|---|---|---|---|---|---|---|
| **1967- 1973** | $50 | | | **2008** | $819 | $3,550 |
| **1974-1977** | $130 | | | **2009** | $858 | $3,720 |
| **1978-1981** | $230 | $1,000 | | **2010** | $900 | $3,900 |
| **1982-1984** | $506 | $2,200 | | **2011** | $944 | $4,090 |
| **1984-1986** | $598 | $2,600 | | **2012** | $965 | $4,180 |
| **1987-1991** | $600 | $2,600 | | **2013** | $985 | $4,270 |
| **1991-2004** | $715 | $3,130 | | **2014-16** | $1,006 | $4,360 |
| **2005** | $736 | $3,190 | | **2017-18** | $1,073 | $4,650 |
| **2006** | $759 | $3,290 | | **2019** | $1,112 | $4,820 |
| **2007** | $782 | $3,390 | | **2020-21** | $1,126 | $4,880 |

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 2020 are shown below.

| Employment Category | National Ins. & Non-Cont. Pensions | | Unemployment Benefits | | Severance Benefits | |
|---|---|---|---|---|---|---|
| | E'ee | E'er | E'ee | E'er | E'ee | E'er |
| **Employed Persons** | 8.75% | 9.5% | 0.75% | 0.75% | - | 0.5% |
| **Temporary Government** | 8.75% | 9.5% | 0.75% | 0.75% | - | - |
| **Permanent Government** | 8.20% | 8.95% | - | - | - | - |
| **Self-employed*** | 15.5% | | - | - | - | - |

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

The average contribution rate payable in 2020 for National Insurance and Non-Contributory pensions is approximately 17.8% of average insurable earnings.

## 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 2020 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 2018.

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 2013 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 $243.00 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*: $230 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*: $1,260 effective January 2020 to December 2020. 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*: $2,185 effective January 2020 to December 2020. 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 1.5 in 2020 remaining at that level in the *Best Estimate* scenario. For the *Pessimistic* and *Optimistic* scenarios, total fertility rates are assumed to be 1.45 and 1.55, respectively, in all years. Table B.1 shows ultimate age-specific and total fertility rates.

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

| Age Group | Ultimate Fertility Rates | | |
|---|---|---|---|
| | *Optimistic* | *Best Estimate* | *Pessimistic* |
| 15 - 19 | 0.042 | 0.041 | 0.039 |
| 20 - 24 | 0.080 | 0.077 | 0.074 |
| 25 - 29 | 0.074 | 0.071 | 0.069 |
| 30 - 34 | 0.069 | 0.067 | 0.064 |
| 35 - 39 | 0.039 | 0.038 | 0.036 |
| 40 - 44 | 0.011 | 0.011 | 0.010 |
| TFR | 1.55 | 1.50 | 1.45 |

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 | | |
|---|---|---|---|---|---|---|
| | 2020 | 2050 | 2080 | 2020 | 2050 | 2080 |
| 0 | 0.0049 | 0.0039 | 0.0041 | 0.0055 | 0.0041 | 0.0032 |
| 5 | 0.0003 | 0.0001 | 0.0001 | 0.0003 | 0.0002 | 0.0001 |
| 15 | 0.0003 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0001 |
| 25 | 0.0010 | 0.0009 | 0.0007 | 0.0004 | 0.0003 | 0.0003 |
| 35 | 0.0010 | 0.0009 | 0.0007 | 0.0006 | 0.0005 | 0.0004 |
| 45 | 0.0023 | 0.0019 | 0.0016 | 0.0015 | 0.0012 | 0.0010 |
| 55 | 0.0062 | 0.0052 | 0.0045 | 0.0036 | 0.0029 | 0.0024 |
| 65 | 0.0153 | 0.0122 | 0.0105 | 0.0089 | 0.0069 | 0.0052 |
| 75 | 0.0433 | 0.0355 | 0.0302 | 0.0284 | 0.0226 | 0.0174 |
| 85 | 0.1147 | 0.1019 | 0.0857 | 0.0817 | 0.0685 | 0.0584 |
| 95 | 0.2742 | 0.2634 | 0.2418 | 0.2288 | 0.2140 | 0.2029 |
| Life Expectancy at: | | | | | | |
| Birth | 76.8 | 78.7 | 80.4 | 81.2 | 83.2 | 85.1 |
| Age 67 | 15.4 | 16.6 | 17.8 | 18.2 | 19.6 | 20.9 |

Net migration (in minus out) for each scenario and 10-year age group is shown below for years 2020 and 2040.

**Table B.3. Net Migration**

| Age | 2020 | | | 2050+ | | |
|---|---|---|---|---|---|---|
| | *Optimistic* | *Best Estimate* | *Pessimistic* | *Optimistic* | *Best Estimate* | *Pessimistic* |
| 0 - 9 | (63) | (75) | (85) | 68 | 34 | 17 |
| 10 - 19 | (71) | (84) | (94) | 76 | 38 | 19 |
| 20 - 29 | (403) | (478) | (537) | 430 | 215 | 107 |
| 30 - 39 | (188) | (223) | (250) | 200 | 100 | 50 |
| 40 - 49 | (34) | (40) | (45) | 36 | 18 | 9 |
| 50 - 59 | 1 | 1 | 1 | (1) | (0) | (0) |
| 60 - 69 | 4 | 5 | 6 | (5) | (2) | (1) |
| 70+ | 3 | 4 | 4 | (4) | (2) | (1) |
| All Ages | (750) | (890) | (1,000) | 800 | 400 | 200 |

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 2020 apply to persons one year younger. Table B.3 below shows the assumed age-specific labour force participation rates in 2020 and 2080. Between these two years, rates are assumed to change linearly.

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

| Age | Males | | Females | |
|---|---|---|---|---|
| | 2020 | 2080 | 2020 | 2080 |
| 17 | 26% | 26% | 20% | 20% |
| 22 | 73% | 73% | 67% | 67% |
| 27 | 85% | 85% | 83% | 83% |
| 32 | 85% | 85% | 84% | 84% |
| 37 | 88% | 88% | 84% | 84% |
| 42 | 87% | 87% | 83% | 83% |
| 47 | 86% | 86% | 83% | 83% |
| 52 | 84% | 84% | 77% | 77% |
| 57 | 80% | 80% | 67% | 67% |
| 62 | 65% | 67% | 61% | 62% |
| 67 | 50% | 42% | 33% | 40% |

| Year | Males | Females |
|---|---|---|
| 2020 | 72% | 67% |
| 2025 | 72% | 66% |
| 2035 | 73% | 68% |
| 2045 | 74% | 68% |
| 2055 | 74% | 69% |
| 2065 | 73% | 68% |
| 2075 | 73% | 68% |

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 0.8%, 1.0% and 1.2% 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 2080, 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, 2020, 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. 2020 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 |
| 15 - 19 | 1,024 | 1,237 | 1,229 | 1,013 | 1.2 | 1.1 |
| 20 - 24 | 5,499 | 6,165 | 1,795 | 1,779 | 4.1 | 3.9 |
| 25 - 29 | 7,005 | 8,804 | 2,491 | 2,342 | 7.8 | 7.6 |
| 30 - 34 | 7,306 | 9,409 | 2,971 | 2,886 | 11.7 | 11.5 |
| 35 - 39 | 7,378 | 10,196 | 3,336 | 3,275 | 15.8 | 15.5 |
| 40 - 44 | 6,777 | 9,921 | 3,315 | 3,088 | 20.0 | 19.6 |
| 45 - 49 | 7,442 | 10,313 | 3,279 | 2,990 | 24.2 | 23.7 |
| 50 - 54 | 7,051 | 9,816 | 3,287 | 3,150 | 28.4 | 27.9 |
| 55 - 59 | 7,222 | 9,771 | 3,577 | 2,881 | 32.7 | 32.1 |
| 60 - 64 | 5,794 | 7,563 | 3,453 | 2,726 | 34.9 | 34.2 |
| 65+ | 2,341 | 2,839 | 2,992 | 2,626 | 35.0 | 34.3 |
| All Ages | 64,839 | 86,034 | 3,053 | 2,819 | 19.0 | 19.1 |

**Table B.6. Pensions in Payment - December 2020**

| Age | Old-Age Benefit | | Invalidity Benefit | | Survivors Benefits | | Disablement & Death Benefits | | Non-Contributory | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female |
| 0 - 4 | - | - | - | - | 8 | 16 | - | - | | |
| 5 - 9 | - | - | - | - | 53 | 59 | - | - | | |
| 10 - 14 | - | - | - | - | 139 | 130 | 2 | - | | |
| 15 - 19 | - | - | - | - | 68 | 71 | - | - | | |
| 20 - 24 | - | - | - | - | 22 | 8 | - | - | - | - |
| 25 - 29 | - | - | 2 | 2 | 2 | 3 | 1 | 1 | - | - |
| 30 - 34 | - | - | 10 | 15 | 2 | 3 | 3 | 3 | - | - |
| 35 - 39 | - | - | 47 | 37 | 3 | 2 | 5 | 3 | - | - |
| 40 - 44 | - | - | 78 | 106 | 2 | 3 | 8 | 1 | - | - |
| 45 - 49 | - | - | 120 | 164 | 7 | 33 | 12 | 10 | - | - |
| 50 - 54 | - | - | 236 | 256 | 26 | 121 | 12 | 8 | - | - |
| 55 - 59 | - | - | 429 | 497 | 76 | 279 | 32 | 17 | - | - |
| 60 - 64 | 522 | 415 | 691 | 821 | 93 | 386 | 34 | 24 | - | - |
| 65 - 69 | 4,316 | 4,618 | - | - | 58 | 301 | 27 | 20 | - | - |
| 70 - 74 | 5,258 | 5,426 | - | - | 23 | 269 | 10 | 9 | - | - |
| 75 - 79 | 3,033 | 3,269 | - | - | 18 | 266 | 4 | 6 | 170 | 684 |
| 80 - 84 | 1,770 | 2,073 | - | - | 14 | 249 | 1 | 5 | 136 | 542 |
| 85 - 89 | 898 | 1,210 | - | - | 10 | 200 | - | 1 | 61 | 390 |
| 90 - 94 | 345 | 571 | - | - | 3 | 91 | - | 1 | 28 | 143 |
| 95 - 99 | 117 | 235 | - | - | 2 | 27 | - | - | 8 | 33 |
| 100+ | - | - | - | - | - | 3 | - | - | - | 2 |
| # of Pensioners | 16,259 | 17,817 | 1,613 | 1,898 | 629 | 2,520 | 151 | 109 | 403 | 1,794 |
| Avg Monthly Pension | $1,438 | $1,265 | $1,363 | $1,208 | $ 465 | $ 723 | $ 1,052 | $ 843 | $ 324 | $ 324 |

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 increase from 2021 to 2024 as the labour market returns to pre-COVID-19 patterns.

**Table B.7. Density of Contributions**

| Age | 2021 | | 2024+ | |
|---|---|---|---|---|
| | Males | Females | Males | Females |
| 17 | 49% | 54% | 51% | 55% |
| 22 | 72% | 73% | 75% | 76% |
| 27 | 78% | 80% | 81% | 82% |
| 32 | 82% | 82% | 84% | 85% |
| 37 | 83% | 83% | 86% | 85% |
| 42 | 86% | 85% | 88% | 87% |
| 47 | 87% | 85% | 90% | 87% |
| 52 | 87% | 86% | 90% | 88% |
| 57 | 89% | 85% | 91% | 87% |
| 62 | 85% | 84% | 88% | 87% |

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

**Table B.8. Rates of Entry into Invalidity**

| Age | Males | Females |
|---|---|---|
| 17 | - | - |
| 22 | - | - |
| 27 | 0.125 | 0.702 |
| 32 | 0.421 | 0.969 |
| 37 | 0.854 | 2.167 |
| 42 | 0.949 | 2.695 |
| 47 | 2.282 | 4.983 |
| 52 | 3.727 | 10.696 |
| 57 | 6.724 | 13.798 |
| 62 | 9.721 | 16.901 |

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 |
| 17 | 0% | - | 0% | - |
| 22 | 8% | 0.0 | 0% | 0.0 |
| 27 | 5% | 0.0 | 0% | 0.1 |
| 32 | 25% | 0.1 | 8% | 0.2 |
| 37 | 23% | 0.3 | 15% | 0.4 |
| 42 | 26% | 0.4 | 13% | 0.4 |
| 47 | 31% | 0.4 | 10% | 0.4 |
| 52 | 29% | 0.2 | 8% | 0.3 |
| 57 | 32% | 0.2 | 10% | 0.1 |
| 62 | 31% | 0.2 | 10% | 0.0 |
| 67 | 26% | 0.1 | 7% | - |
| 72 | 10% | 0.0 | 4% | - |
| 77 | 9% | 0.1 | 3% | - |
| 82 | 8% | 0.0 | 2% | - |
| 87 | 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 |
|---|---|---|---|---|---|---|---|---|
| **2010** | 277,821 | 58,523 | 21.1% | 187,698 | 67.6% | 31,601 | 11.4% | 0.17 |
| | | | | **Best Estimate** | | | | |
| **2020** | 271,641 | 47,780 | 17.6% | 185,496 | 68.3% | 38,364 | 14.1% | 0.21 |
| **2030** | 265,724 | 39,394 | 14.8% | 173,867 | 65.4% | 52,462 | 19.7% | 0.30 |
| **2040** | 259,198 | 38,032 | 14.7% | 160,321 | 61.9% | 60,845 | 23.5% | 0.38 |
| **2050** | 247,020 | 34,892 | 14.1% | 151,568 | 61.4% | 60,559 | 24.5% | 0.40 |
| **2060** | 233,499 | 31,900 | 13.7% | 145,909 | 62.5% | 55,690 | 23.9% | 0.38 |
| **2070** | 221,670 | 30,168 | 13.6% | 135,874 | 61.3% | 55,628 | 25.1% | 0.41 |
| | | | | **Optimistic** | | | | |
| **2020** | 273,154 | 48,018 | 17.6% | 186,782 | 68.4% | 38,354 | 14.0% | 0.21 |
| **2030** | 270,332 | 41,078 | 15.2% | 176,812 | 65.4% | 52,441 | 19.4% | 0.30 |
| **2040** | 268,004 | 40,861 | 15.2% | 166,294 | 62.0% | 60,848 | 22.7% | 0.37 |
| **2050** | 261,664 | 38,766 | 14.8% | 162,103 | 62.0% | 60,795 | 23.2% | 0.38 |
| **2060** | 255,142 | 37,233 | 14.6% | 161,202 | 63.2% | 56,706 | 22.2% | 0.35 |
| **2070** | 250,574 | 36,664 | 14.6% | 156,204 | 62.3% | 57,706 | 23.0% | 0.37 |
| | | | | **Pessimistic** | | | | |
| **2020** | 270,438 | 47,579 | 17.6% | 184,486 | 68.2% | 38,373 | 14.2% | 0.21 |
| **2030** | 260,470 | 37,650 | 14.5% | 170,332 | 65.4% | 52,488 | 20.2% | 0.31 |
| **2040** | 248,531 | 34,742 | 14.0% | 152,925 | 61.5% | 60,864 | 24.5% | 0.40 |
| **2050** | 231,604 | 30,890 | 13.3% | 140,352 | 60.6% | 60,361 | 26.1% | 0.43 |
| **2060** | 213,651 | 27,397 | 12.8% | 131,598 | 61.6% | 54,656 | 25.6% | 0.42 |
| **2070** | 197,485 | 25,165 | 12.7% | 119,282 | 60.4% | 53,038 | 26.9% | 0.44 |

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

| Year | Cash Inflows | | | | Cash Outflows | | | Reserves | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Contributions | Investment | Other | Total | Benefits | Admin. & Other | Total | Surplus/ (Deficit) | End of Year | R-E Ratio |
| **2021** | 567 | 123 | 3 | 693 | 799 | 38 | 837 | (144) | 4,090 | 4.9 |
| **2022** | 590 | 178 | 3 | 771 | 820 | 40 | 860 | (89) | 4,001 | 4.7 |
| **2023** | 615 | 174 | 3 | 792 | 844 | 41 | 885 | (93) | 3,907 | 4.4 |
| **2024** | 634 | 169 | 3 | 807 | 881 | 43 | 923 | (116) | 3,791 | 4.1 |
| **2025** | 651 | 163 | 3 | 818 | 940 | 44 | 984 | (166) | 3,625 | 3.7 |
| **2026** | 665 | 155 | 3 | 824 | 997 | 45 | 1,042 | (218) | 3,407 | 3.3 |
| **2030** | 712 | 86 | 4 | 802 | 1,209 | 48 | 1,257 | (456) | 1,956 | 1.6 |
| **2040** | 840 | (206) | 4 | 638 | 1,644 | 57 | 1,701 | (1,063) | (5,785) | -3.4 |
| **2050** | 965 | (767) | 5 | 203 | 1,965 | 65 | 2,030 | (1,827) | (20,476) | -10.1 |
| **2060** | 1,123 | (1,673) | 6 | (544) | 2,266 | 76 | 2,342 | (2,886) | (44,102) | -18.8 |
| **2070** | 1,298 | (3,142) | 6 | (1,837) | 2,854 | 88 | 2,942 | (4,779) | (82,513) | -28.0 |
| **2080** | 1,501 | (5,565) | 8 | (4,056) | 3,597 | 101 | 3,698 | (7,755) | (145,784) | -39.4 |

*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 |
| **2018** | 547 | 74 | 32 | 12 | 32 | 11 | 19.5% | 6.9% |
| **2019** | 575 | 77 | 35 | 9 | 44 | 13 | 20.2% | 7.1% |
| **2020** | 609 | 79 | 36 | 8 | 35 | 10 | 23.2% | 8.7% |
| **2021** | 627 | 81 | 37 | 8 | 36 | 11 | 25.1% | 8.6% |
| **2022** | 644 | 84 | 37 | 7 | 37 | 11 | 24.8% | 8.0% |
| **2023** | 664 | 87 | 37 | 6 | 39 | 12 | 24.4% | 7.9% |
| **2024** | 696 | 90 | 38 | 5 | 40 | 12 | 24.7% | 8.0% |
| **2025** | 748 | 95 | 39 | 4 | 41 | 13 | 25.7% | 8.3% |
| **2026** | 798 | 100 | 41 | 3 | 42 | 13 | 26.7% | 8.6% |
| **2030** | 985 | 117 | 46 | 1 | 45 | 15 | 30.2% | 9.7% |
| **2040** | 1,363 | 151 | 59 | 0 | 53 | 18 | 34.9% | 11.1% |
| **2050** | 1,639 | 176 | 69 | 0 | 61 | 21 | 36.2% | 11.5% |
| **2060** | 1,871 | 224 | 75 | - | 70 | 26 | 35.9% | 11.4% |
| **2070** | 2,382 | 274 | 86 | - | 81 | 31 | 39.1% | 12.4% |
| **2080** | 3,076 | 290 | 103 | - | 94 | 34 | 42.7% | 13.4% |

*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 (End of Year) | | | | | Total # of Pensioners | Ratio of Contributors to Pensioners |
|---|---|---|---|---|---|---|---|---|
| | | Old Age Cont. | Invalidity | Survivors | Non-Cont. Old Age | Death & Disablement | | |
| **2018** | 114,146 | 31,415 | 4,365 | 3,147 | 2,377 | 284 | 41,588 | 2.7 |
| **2019** | 113,485 | 32,649 | 4,357 | 3,161 | 2,287 | 267 | 42,721 | 2.7 |
| **2020** | 107,523 | 34,076 | 4,335 | 3,168 | 2,197 | 266 | 44,042 | 2.4 |
| **2021** | 109,296 | 35,189 | 4,688 | 3,699 | 1,895 | 307 | 45,779 | 2.4 |
| **2022** | 109,772 | 36,182 | 4,835 | 3,778 | 1,618 | 317 | 46,729 | 2.3 |
| **2023** | 110,292 | 37,299 | 4,943 | 3,845 | 1,373 | 323 | 47,783 | 2.3 |
| **2024** | 111,054 | 38,747 | 5,052 | 3,893 | 1,156 | 330 | 49,179 | 2.3 |
| **2025** | 111,247 | 40,233 | 5,156 | 3,929 | 965 | 337 | 50,620 | 2.2 |
| **2026** | 110,866 | 41,576 | 5,235 | 3,956 | 798 | 342 | 51,907 | 2.1 |
| **2030** | 107,257 | 45,837 | 5,461 | 4,021 | 327 | 356 | 56,001 | 1.9 |
| **2040** | 97,982 | 49,269 | 5,500 | 4,077 | 6 | 359 | 59,211 | 1.7 |
| **2050** | 86,487 | 47,216 | 5,051 | 3,691 | 0 | 329 | 56,287 | 1.5 |
| **2060** | 77,288 | 43,492 | 4,989 | 3,171 | - | 322 | 51,973 | 1.5 |
| **2070** | 68,541 | 44,014 | 4,688 | 2,881 | - | 301 | 51,885 | 1.3 |
| **2080** | 60,965 | 44,013 | 3,845 | 2,715 | - | 250 | 50,823 | 1.2 |

*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 | Cash Inflows | | | | Cash Outflows | | | Reserves | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Contributions | Investment | Other | Total | Benefits | Admin. & Other | Total | Surplus/ (Deficit) | End of Year | R-E Ratio |
| **2021** | 615 | 124 | 3 | 742 | 794 | 35 | 828 | (86) | 4,148 | 5.0 |
| **2022** | 652 | 223 | 3 | 878 | 810 | 37 | 846 | 32 | 4,180 | 4.9 |
| **2023** | 683 | 225 | 3 | 911 | 828 | 38 | 867 | 45 | 4,225 | 4.9 |
| **2024** | 708 | 227 | 4 | 939 | 855 | 40 | 894 | 45 | 4,270 | 4.8 |
| **2025** | 731 | 229 | 4 | 964 | 907 | 41 | 948 | 16 | 4,286 | 4.5 |
| **2026** | 751 | 229 | 4 | 984 | 955 | 42 | 998 | (14) | 4,272 | 4.3 |
| **2030** | 820 | 193 | 4 | 1,017 | 1,138 | 46 | 1,184 | (167) | 3,871 | 3.3 |
| **2040** | 1,019 | 18 | 5 | 1,042 | 1,561 | 57 | 1,618 | (576) | 86 | 0.1 |
| **2050** | 1,240 | (385) | 6 | 861 | 1,881 | 70 | 1,950 | (1,089) | (8,438) | -4.3 |
| **2060** | 1,517 | (1,072) | 8 | 453 | 2,176 | 85 | 2,261 | (1,808) | (22,881) | -10.1 |
| **2070** | 1,844 | (2,277) | 9 | (424) | 2,775 | 104 | 2,879 | (3,302) | (48,331) | -16.8 |
| **2080** | 2,251 | (4,481) | 11 | (2,218) | 3,591 | 126 | 3,718 | (5,936) | (94,833) | -25.5 |

*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 |
| **2018** | 547 | 74 | 32 | 12 | 32 | 11 | 19.5% | 6.9% |
| **2019** | 575 | 77 | 35 | 9 | 44 | 13 | 20.2% | 7.1% |
| **2020** | 609 | 79 | 36 | 8 | 35 | 10 | 23.2% | 8.7% |
| **2021** | 621 | 80 | 37 | 8 | 37 | 11 | 23.0% | 8.4% |
| **2022** | 632 | 83 | 37 | 7 | 39 | 12 | 22.1% | 7.7% |
| **2023** | 646 | 86 | 37 | 6 | 41 | 12 | 21.6% | 7.6% |
| **2024** | 668 | 89 | 37 | 5 | 43 | 13 | 21.5% | 7.5% |
| **2025** | 713 | 94 | 38 | 4 | 44 | 13 | 22.1% | 7.7% |
| **2026** | 754 | 99 | 40 | 3 | 45 | 14 | 22.6% | 7.9% |
| **2030** | 912 | 117 | 44 | 1 | 49 | 15 | 24.7% | 8.6% |
| **2040** | 1,271 | 154 | 55 | 0 | 61 | 20 | 27.3% | 9.5% |
| **2050** | 1,531 | 188 | 63 | 0 | 75 | 24 | 27.0% | 9.4% |
| **2060** | 1,737 | 247 | 70 | - | 91 | 30 | 25.5% | 8.9% |
| **2070** | 2,232 | 311 | 82 | - | 111 | 38 | 26.8% | 9.3% |
| **2080** | 2,956 | 354 | 102 | - | 136 | 44 | 28.4% | 9.8% |

*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 | # of Pensioners (End of Year) | | | | | Total # of Pensioners | Ratio of Contributors to Pensioners |
|---|---|---|---|---|---|---|---|---|
| | | Old Age Cont. | Invalidity | Survivors | Non-Cont. Old Age | Death & Disablement | | |
| **2018** | 114,146 | 31,415 | 4,365 | 3,147 | 2,377 | 284 | 41,588 | 2.7 |
| **2019** | 113,485 | 32,649 | 4,357 | 3,161 | 2,287 | 267 | 42,721 | 2.7 |
| **2020** | 107,523 | 34,076 | 4,335 | 3,168 | 2,197 | 266 | 44,042 | 2.4 |
| **2021** | 110,257 | 34,823 | 4,673 | 3,691 | 1,895 | 306 | 45,388 | 2.4 |
| **2022** | 112,943 | 35,500 | 4,811 | 3,761 | 1,618 | 315 | 46,006 | 2.5 |
| **2023** | 115,863 | 36,352 | 4,919 | 3,821 | 1,373 | 322 | 46,787 | 2.5 |
| **2024** | 117,407 | 37,532 | 5,036 | 3,861 | 1,156 | 329 | 47,916 | 2.5 |
| **2025** | 118,367 | 38,761 | 5,153 | 3,891 | 965 | 336 | 49,107 | 2.4 |
| **2026** | 118,147 | 39,859 | 5,252 | 3,912 | 798 | 342 | 50,164 | 2.4 |
| **2030** | 116,315 | 43,674 | 5,572 | 3,951 | 327 | 362 | 53,887 | 2.2 |
| **2040** | 110,589 | 48,175 | 5,818 | 3,975 | 6 | 377 | 58,350 | 1.9 |
| **2050** | 107,915 | 47,321 | 5,669 | 3,676 | 0 | 366 | 57,032 | 1.9 |
| **2060** | 106,664 | 44,964 | 5,994 | 3,314 | - | 383 | 54,654 | 2.0 |
| **2070** | 103,059 | 47,907 | 6,054 | 3,165 | - | 385 | 57,511 | 1.8 |
| **2080** | 99,688 | 50,859 | 5,500 | 3,150 | - | 352 | 59,861 | 1.7 |

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

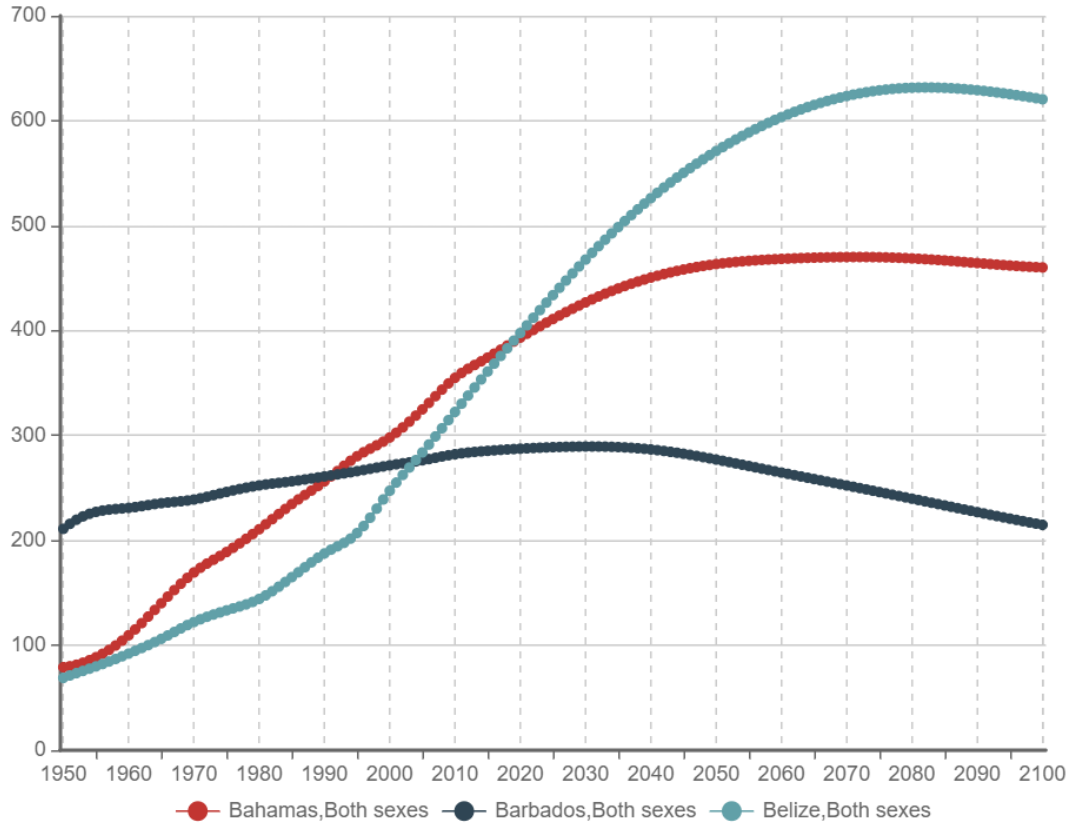
# Appendix D Income & Expenditure, 2018–2020

| | 2018 | 2019 | 2020 |
|---|---|---|---|
| **Income** | | | |
| Contribution Income | 621.4 | 670.9 | 594.6 |
| Investment Income | 267.1 | 145.6 | 145.1 |
| Other Income | 3.5 | 4.7 | 4.2 |
| **Total Income** | **891.9** | **821.3** | **744.0** |
| | | | |
| **Expenditure** | | | |
| **Benefits** | | | |
| Sickness Benefit | 21.1 | 31.0 | 23.0 |
| Maternity Benefit | 7.7 | 8.3 | 7.6 |
| Maternity Grant | 0.3 | 0.2 | 0.1 |
| Funeral Benefit | 3.1 | 4.2 | 4.4 |
| Contributory Old-age Benefit | 547.0 | 575.2 | 609.0 |
| Invalidity Benefit | 74.2 | 77.1 | 78.6 |
| Survivor's Benefit | 32.2 | 34.7 | 36.2 |
| Non-Cont Old Age Benefit | 12.2 | 9.0 | 8.2 |
| Disablement Grant | 1.8 | 1.2 | 1.2 |
| Travelling Expenses | 0.0 | 0.1 | 0.0 |
| Medical Expenses | 0.2 | 1.1 | 0.3 |
| Injury Benefit | 3.5 | 5.1 | 3.3 |
| Disablement Benefit | 4.7 | 5.0 | 4.7 |
| Death Benefit | 0.5 | 0.4 | 0.4 |
| | | | |
| **Total Benefit Expenditure** | **708.3** | **752.5** | **777.1** |
| Administrative Expenditure | 45.2 | 36.1 | 33.5 |
| | | | |
| **Total Expenses** | **753.5** | **788.6** | **810.6** |
| | | | |
| **Excess of Income over Expenditure** | **138.4** | **32.7** | **(66.6)** |
| | | | |
| **Loss Due to Debt Restructuring** | **(805.1)** | **-** | **-** |

# Appendix E High Immigration Scenarios

For decades, Barbados experienced lower fertility rates than other Caribbean countries which has resulted in Barbados having slower population growth. The following chart shows historical and projected populations for Barbados, Belize and The Bahamas taken from the Economic Commission for Latin America and the Caribbean (ECLAC). As shown, in 1950, Barbados' population was more than twice that of The Bahamas and Belize while in 2022, it has over 100,000 fewer residents. With populations in the Bahamas and Belize projected to increase for a few more decades, Barbados' population is projected to decline.

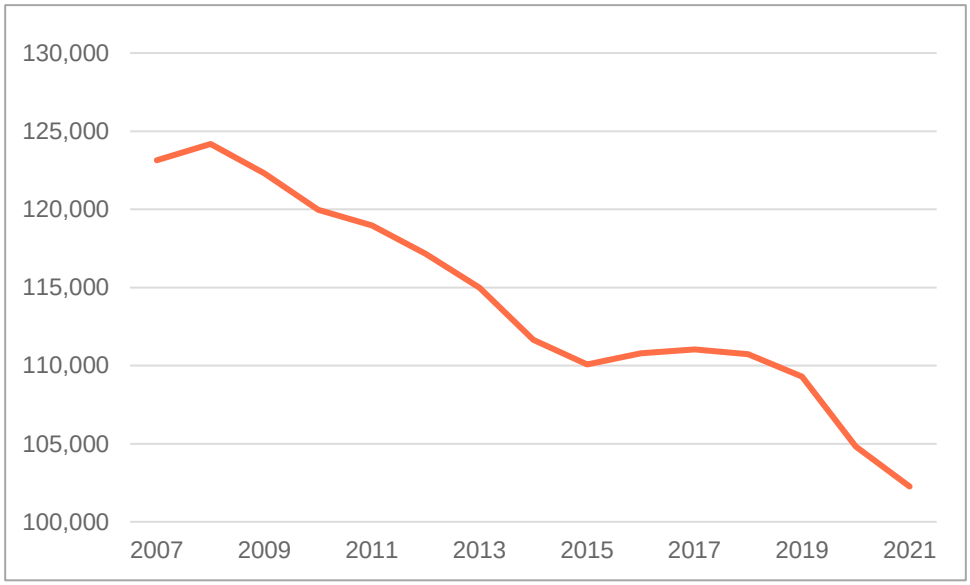
**Figure F.1. Historical & Projected Populations – Barbados, Bahamas, Belize**




Source: Economic Commission for Latin America and the Caribbean

The slow growing but fast aging resident population has negatively impacted the number of NIS contributors. The following chart shows that number of employed persons (self-employeds excluded) who contributed to the NIS each year declined by over 20,000, or 17%, between 2007 and 2021.

**Figure F.2. # of Employees Contributing to the NIS**




In 2018, the Government established the Barbados Population Commission with a mandate to prepare (i) a population statistical analysis and (ii) a national population policy. Devising strategies to grow the population is expected to be part of the national population policy. There are three factors that affect population size - fertility, mortality and migration. Of these three factors, only migration related national policies are likely to result in a material increase in the resident population.

For illustrative purposes, the outlook for the National Insurance Fund has been estimated under 3 scenarios of higher in-migration than that assumed in the *Optimistic* scenario presented in Chapter 4. Other than assumed fertility rates, migration rates, real GDP growth rates and yields on reserves, all assumptions are similar to those of the *Best Estimate* scenario. The assumptions which different are summarised below.

**Table F.1. Demographic, Economic & NIS Assumptions – High Migration Scenarios**

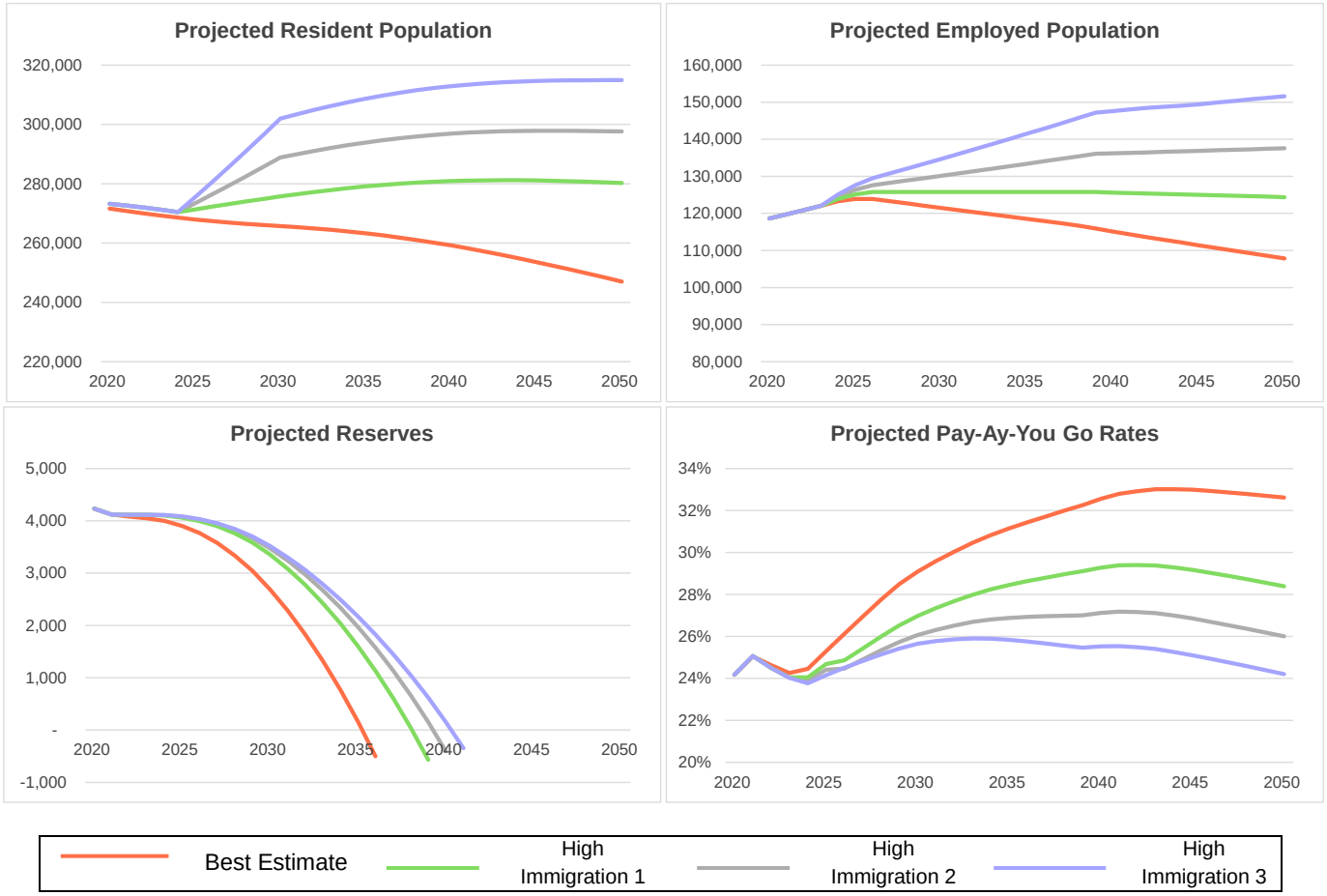
| | ***Best Estimate*** | ***High Immigration 1*** | ***High Immigration 2*** | ***High Immigration 3*** |
|---|---|---|---|---|
| **Total Fertility Rate** | 1.5 | 1.6 | 1.6 | 1.6 |
| **Net (In) Migration Per Annum (p.a.) after 2024** | -450 in 2024 increasing to 200 in 2030, increasing to 400 in 2050, constant thereafter | -750 in 2024 increasing to 1,000 in 2030, constant at 1,000 thereafter | -750 in 2024 increasing to 3,000 in 2030, constant at 1,000 thereafter | -750 in 2024 increasing to 5,000 in 2030, constant at 1,000 thereafter |
| **Real GDP Growth Rates (p.a.)** | | +0.5% up to 2039, +0.55% thereafter | +0.5% up to 2039, +0.75% thereafter | +0.5% up to 2039, +0.95% thereafter |
| **Yield on Reserves (3.0% in 2021)** | 5% in 2022 to 2029, 4.5% thereafter | 0.5% more than *Best Estimate* each year | 0.5% more than *Best Estimate* each year | 0.5% more than *Best Estimate* each year |

Instead of a population that is expected to decrease each year, the three “High Immigration” scenarios forecast resident populations leveling off at around.:

- High Immigration 1 – 280,000
- High Immigration 2 – 297,000
- High Immigration 3 – 314,000

The following charts illustrate projected resident and employed population, NIF reserves and pay-as-you-go rates up to 2050.

**Figure F.2. Projection Results – Best Estimate & 3 High Immigration Scenarios**




The following conclusions can be drawn from the results illustrated above.

- A larger population with a higher number of employed persons, produces a better outlook for the NIF.
- Since the gap between contribution income and expenditure is already so large, the impact of higher migration on when the Fund is projected to be depleted is only 3 to 5 years. However, the additional employment, wages and contribution income, would lead to a significant reduction in annual costs or pay-as-you-go rates.
- With such reductions in pay-as-you-go rates, a combination of high in-migration and benefit reforms that further reduce long-term costs, could result in pay-as-you-go rates being closer to the current average contribution rate of 18%.

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