TELUS Health

St. Vincent & The Grenadines National Insurance Services

12th Actuarial Review of the National Insurance Fund as of December 31, 2022

December 2023

Table of contents

Introduction

The St. Vincent & The Grenadines National Insurance Services (NIS) began operations in January 1987. It currently covers all employed and self-employed persons and offers three types of social security benefits - short-term benefits, long-term benefits or pensions and employment injury benefits. Payments related to the former National Provident Fund (NPF) are also administered by the NIS. 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 12th Actuarial Review of the National Insurance Fund, and it is being prepared as of December 31, 2022, three years after the 11th Actuarial Review. Section 17 of the National Insurance 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 St. Vincent & The Grenadines 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, 75-year demographic and financial projections have been performed. 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 National Insurance Fund is due as of December 31, 2025.

We wish to thank Mr. Stewart Haynes, Director, and all other members of the National Insurance Services staff who provided data and otherwise assisted with this review.

All dollar amounts in this report are quoted in Eastern Caribbean (EC) dollars.

December 22, 2023

Acronyms & Abbreviations

GDP	Gross Domestic Product
EIB	Employment Injury Benefits
IE	Insurable Earnings (sometimes “Insurable Wages” used)
ILO	International Labour Office
IMF	International Monetary Fund
LTB	Long-term Benefits
NAAP	Non-contributory Assistance Age Pension
NIB	National Insurance Board
NIF	National Insurance Fund
NIS	National Insurance Services
OECD	Organisation for Economic Co-operation & Development
OECS	Organisation of Eastern Caribbean States
STB	Short-term Benefits
SVG	St. Vincent and the Grenadines
TFR	Total Fertility Rate
UEB	Unemployment Benefit

Executive Summary

National Insurance Services (NIS) makes promises to former and current workers that extend beyond sixty years. It is therefore important that it is well designed, well governed, and properly administered. Periodic actuarial reviews provide a comprehensive assessment of the current and projected state of the National Insurance Fund (NIF). They also provide policy recommendations for changes designed to ensure that a suitable balance between benefit adequacy, contribution affordability, and financial sustainability is achieved for both current and future periods. This is the report of the 12th Actuarial Review of the NIF and has been conducted as of December 31st, 2022. It covers the 3-year period 2020 to 2022.

Experience During the Review Period

While the COVID-19 pandemic had far-reaching human, social and economic impacts, the effect on National Insurance Fund finances was limited primarily to contribution income being slightly lower than it otherwise would have been in 2020 and 2021. To provide income support to the thousands of persons who became unemployed, a total of $3 million was paid out in temporary unemployment assistance benefits in 2020 and 2021. Highlights of other relevant experience during 2020 to 2022 include:

- The 42,500 contributors in 2022, was less than the 43,100 who contributed in 2019, a growing number of which are over 60 and receiving an Age pension.
- The number of pensioners increased from 8,100 in 2019 to 8,900 in 2022.
- Age pension accounts for 79% of total benefit expenditure.
- Annual benefit expenditure increased by 22% between 2019 and 2022 and total benefit expenditure exceeded contribution income in all years.
- The average gap between total expenditure and contribution income was 3.2%.
- In 2021 and 2022, total expenditure exceeded total income resulting in reserves entering a downward trend.
- Investment returns over the review period were low.
- Total NIF reserves at the end of 2022 were $467 million.

During the review period, a Funding Policy was established, and the Investment Policy and Enterprise Risk Management Policy were updated.

Main Findings & Projection Results

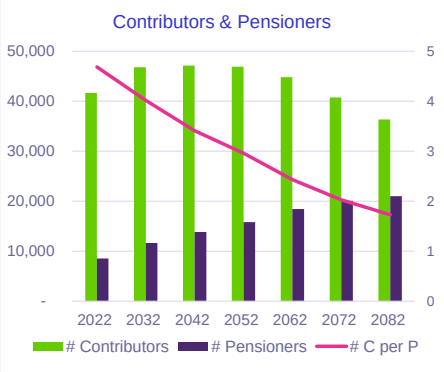
This report's assessment of NIS policy and design indicators suggests that current contribution and benefit provisions provide a good level of benefit adequacy and income protection to most workers and pensioners. Pensions have not been increased since 2014. Therefore, the pension initially awarded to most has lost some of its purchasing power. Cumulative inflation since 2014 is estimated at 10.3%. Even though the wage ceiling has not been increased since 2006, only 8% of insureds earn more than $4,333 per month. Participation rates among self-employed persons and informal sector workers continues to be very low which could be the main reason that the portion of insureds who qualify for a funeral grant, maternity grant and even Age pensions, is lower than expected.

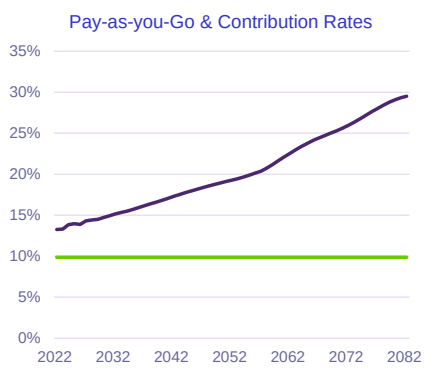
Although the portion of Fund investments held in cash and deposits is higher than near-term liquidity demands suggest, investments are generally well diversified: - only 11% of investments are held in Government of SVG debt and 45% of investments outside of St. Vincent & The Grenadines. Although administrative costs are high

compared to others in the OECS of similar size, they are trending downwards. The NIS is up to date with preparing audited financial statements and actuarial reviews, with the report of 11th Actuarial Review and audited financial statements posted on its website.

75-year projections of NIS income, expenditure and reserves are presented in this report. These are all based on there being no increase in contribution rate or new benefit reforms. As shown in the three charts below:

- The number of pensioners is projected to keep increasing while the number of contributors will eventually decrease resulting in the number of contributors per pensioner falling from 4.8 in 2022 to under 2.0 after 2072. (Left chart)
- Expenditure as a percent of insurable wages is forecast to exceed 16% in the mid-2030's and over 20% in the mid-2050's (middle chart)
- Reserves are projected to be depleted in 2036 (right chart).





If reserves ever become exhausted, or there are no reserves that can be converted to cash to meet current expenditure, there will only be two possible sources of additional income to meet benefit payments: -

(a) higher contributions, and

(b) special transfers from government.

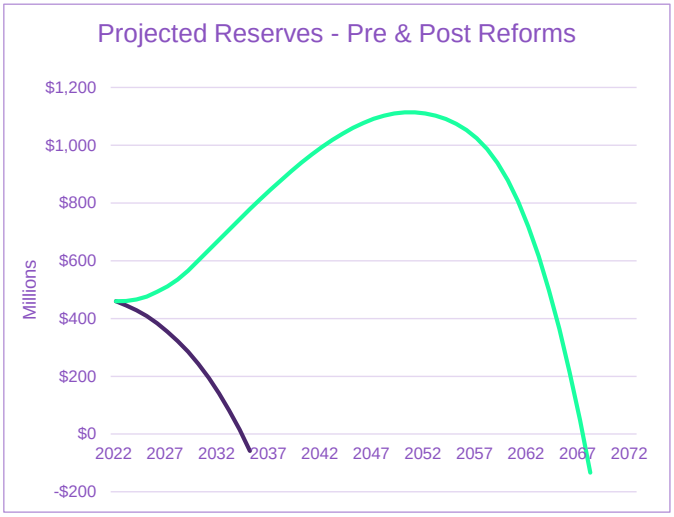
Projections were also made under two different sets of assumptions – one optimistic and one pessimistic. Following are key results, expressed in ranges, for the three projection sets:

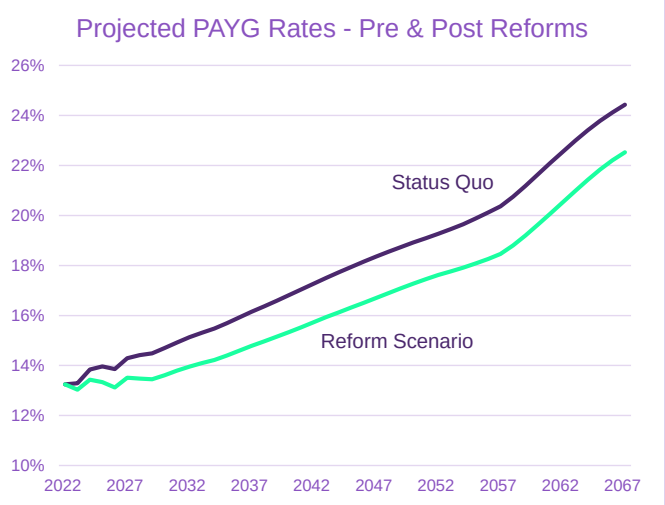
1. Total expenditure will exceed total income in all years, except in 2023 and 2024 if equity investments perform very well.
2. The Fund will be depleted between 2034 and 2040.
3. The pay-as-you-go rate in the mid-2030's, around the time the Fund is projected to be depleted, will be between 13.5% and 17.5%.
4. The General Average Premium is between 16.8% and 23.4%, 19.9% for the *Best Estimate* scenario.
5. The recently created Funding Policy sets a target of reserves being at least three (3) times projected annual expenditure within three years. Under all three scenarios, this target is met.

These results are consistent with those of the 11th Actuarial Review.

The St. Vincent & The Grenadines NIS faces similar challenges to other social security schemes across the Caribbean. While previous reforms resulted in increased contributions and now reduced pension payouts, additional reforms that affect both income and expenditure are required.

The charts below show that a combination of reforms consistent with those already made in other Caribbean countries, could result in a significant change in outlook for the National Insurance Fund.





The reforms producing the above results include (i) increasing the contribution rate to 15% in 2030, (ii) Age pension changed to a Retirement pension until age 65, and (iii) revisions to the pension formula such that average new pensions are slightly smaller. (See Chapter 6 for further details).

Recommendations

As Fund depletion looms, immediate mitigating measures are required. A delicate balance between the conflicting priorities of (i) benefit adequacy, (ii) contribution affordability and (iii) Fund sustainability is required. Ideally, the burden felt by these measures should be shared by all, including those who are already in receipt of a pension. Therefore, even though pensions have not been increased since 2014 any increase that is considered should only be granted to those receiving smaller pension amounts.

The next round of reforms should have an objective of positive reserves for at least the next 25 to 30 years. Specific recommendations for Age pension reforms are:

1. Do not award Early Age pensions to insureds who have not retired or at least substantially retired. That is, change the “Age” pension to a “Retirement” pension.
2. Reduce the maximum Age/Invalidity pension percentage rate from 60% to 55%.
3. Increase the reduction factors that apply to Early Age pensions from ½% per month to as much as ¾% per month as a means of discouraging early pensions.
4. Consider eliminating the Reduced Age pension or at least gradually increasing the age at which it is first awarded to 62. Appropriate changes to labour laws may be required.

Other recommendations made in this report are:

5. Implement a planned schedule of contribution rate increases that will result in the contribution rate being at least 15% no later than 2030. Given that expenditure already exceeds the current contribution rate by more than 3%, the initial adjustment should be at least 2%.
6. Revise the recently approved Funding Policy target of reserves being at least three (3) times projected annual expenditure within three (3) years as this short-term target does not adequately reflect the pace at which reserves are projected to decline.
7. Increase the minimum pension by up to 10%.
8. Develop annual, or possibly biennial, adjustments to the wage ceiling, minimum pension rates and grant amounts.
9. Consider the introduction of a permanent unemployment benefit. (Chapter 7)
10. Make self-employed participation mandatory and implement a new approach for self-employed persons and informal sector workers to easily pay contributions to the NIS. (Chapter 8)

If major reforms are not made soon, the National Insurance Fund will experience cash flow challenges within the next ten years where drastic measures will be required. Even if all the recommendations made above are implemented soon, additional contribution rate increases may be required to ensure the continued payment of benefits without government support. Adherence to the specific automatic adjustment mechanisms found in the Funding Policy which are intended to trigger reforms when finances appear to be going “off-track” will be vital for maintaining confidence that the NIS will be sustainable for future generations.

Summary of Report's Recommendations

The following table classifies the many recommendations made in this report.

1. Age Pension

- Change the "Age" pension to a "Retirement" such that Early Age pensions are not awarded until the insured has either retired or substantially retired.
- Reduce the maximum Age/Invalidity pension percentage rate from 60% to 55%.
- Increase the reduction factors that apply to Early Age pensions from ½% per month to as much as ¾% per month.
- Consider eliminating the Reduced Age pension or at least gradually increasing the age at which it is first awarded to 62.

2. Other

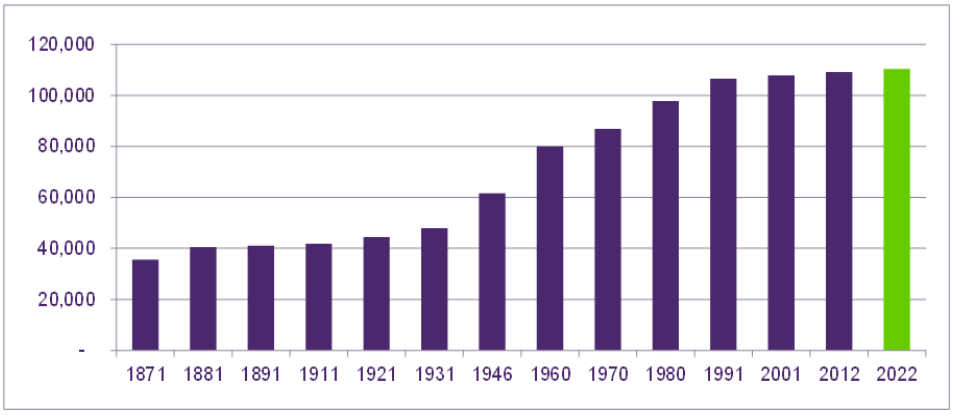
- Revise the recently approved Funding Policy target of reserves being at least three (3) times projected annual expenditure within three years as this short-term target does not adequately reflect the pace at which reserves are projected to decline.
- Implement a planned schedule of contribution rate increases to at least 15% no later than 2030, with an initial adjustment of 2%.
- Revise the recently approved Funding Policy target of reserves being at least three (3) times projected annual expenditure within three years as this short-term target does not adequately reflect the pace at which reserves are projected to decline.
- Increase the minimum pension by up to 10%.
- Consider the introduction of a permanent unemployment benefit.
- Consider annual, or possibly biennial, adjustments to the wage ceiling, minimum pension rates and grant amounts.
- Make self-employed participation mandatory and implement a new approach for self-employed persons and informal sector workers to easily pay contributions to the NIS.

Chapter 1 Historical Experience

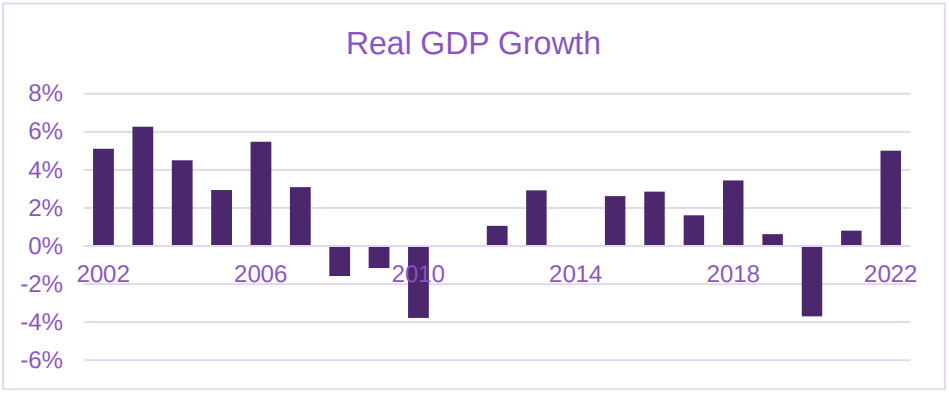
National Insurance performance is intrinsically linked to population changes and economic fortunes. Through charts this Chapter illustrates the evolution of the St. Vincent & The Grenadines' population and economy, and National Insurance Fund demographic and financial experience factors from 2002 to 2022.

1.1 Population & Economy

Figure 1.1. Historical SVG Population up to 2022, GDP Growth & Inflation, 2002 to 2022

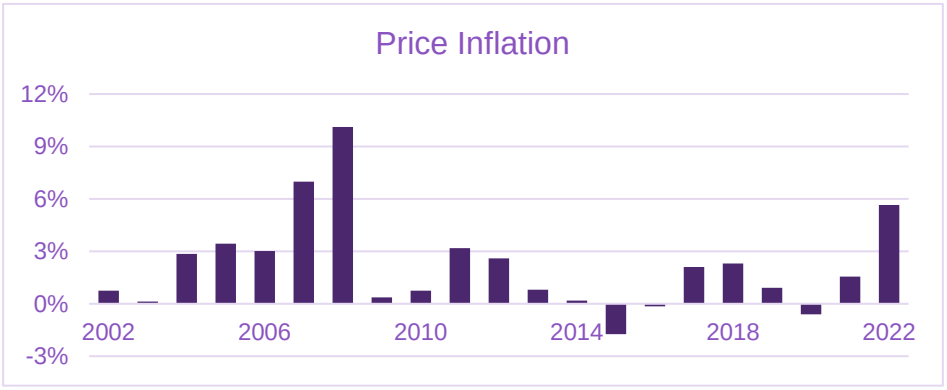


The latest population census conducted in 2012 placed the resident SVG population at 109,991 up from 107,835 in 2001. With the planned 2022 census being delayed, official estimates place the population in 2022 at 110,418. (Implied average migration between 2012 and 2022 is 520 per annum.)



Between 2002 and 2022, the economy enjoyed several extended periods of real positive growth. Average growth rates over varying periods up to 2022 were:

- 20-year average: 1.6%
- 10-year average: 1.6%
- 5-year average: 1.2%



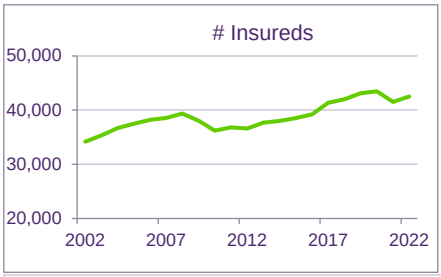
As shown below, prior to 2022, inflation rates have been relatively low:

- 20-year average: 2.2%
- 10-year average: 1.1%
- 5-year average: 2.0%

1.2 National Insurance Fund Experience

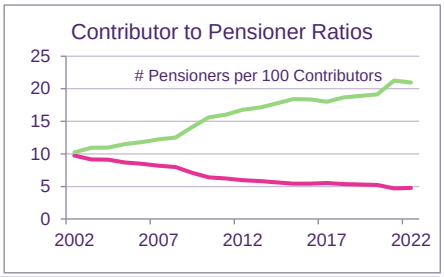
The following charts show the number of persons contributing and drawing pensions each year.

Figure 1.2. Insured Persons (Contributors) & Pensioners, 2002 to 2022



The number of NIS contributors is closely linked to economic performance. Lockdowns and other impacts from the Covid-19 pandemic affected employment levels and thus NIS contributors in 2020 and 2021. The number of contributors in 2022 was below 2019 levels.

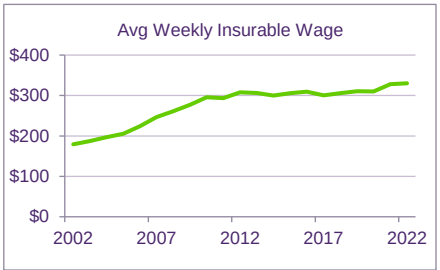
The number of pensioners continues to increase each year as expected. The increases in pensionable age every 3 years have helped to slow the rate of increase in the number of pensioners.



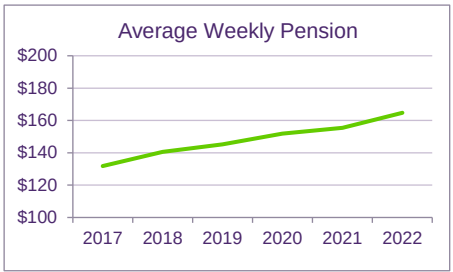
The number of pensioners has generally grown at a faster rate than contributors. (Green line) The inverse of this is the support ratio. In 2022, there were 4.8 contributors for each pensioner compared with 9.8 contributors for each pensioner in 2002. (Pink line)

The following charts show the average insurable wages and pension amounts for those contributing and drawing pensions, respectively.

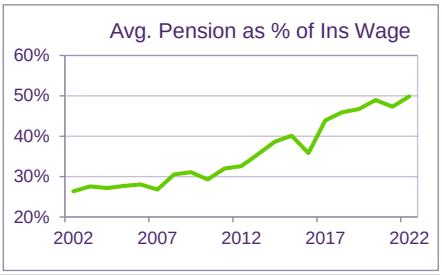
Figure 1.3. Average Insurable Wages & Average Pensions, 2002 to 2022



Between 2010 and 2020 there was little growth in the average wages during actual weeks worked. The increase in 2020 to 2022 is likely linked to formal sector workers being least affected by reduced hours and days during and since Covid lockdowns.



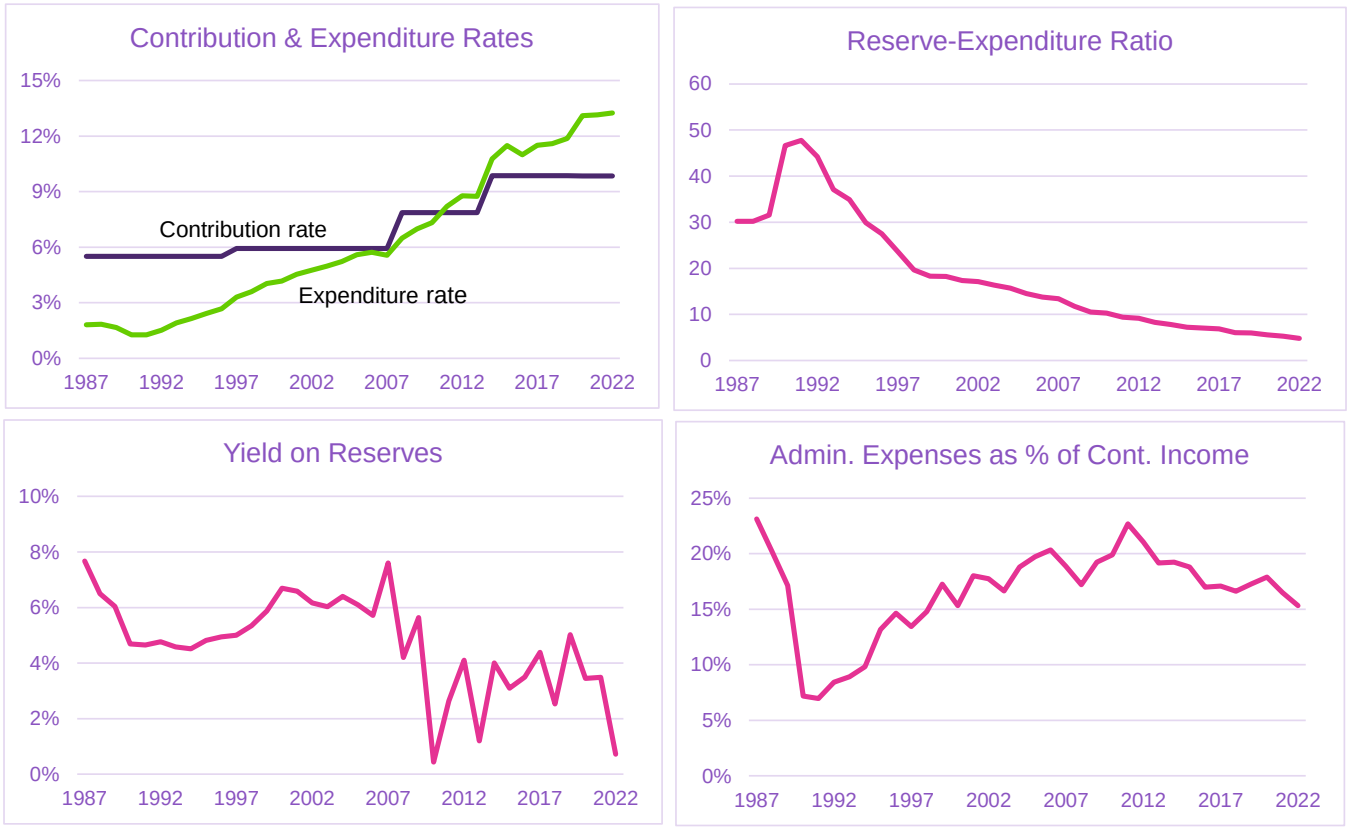
Average pension amounts generally increased each year as new pensioners have a higher average pension than those that die.



Overall, the average pension amount has increased more quickly than the average insurable wage.

The following four charts provide a near-complete picture of NIF financial experience since inception.

Figure 1.4. NIF Financial Experience, 1987 to 2022



As a partially funded social security system matures total expenditure as a percentage of insurable wages gradually increases while the size of the reserve relative to annual expenditure decreases. This has been the case for the NIS as depicted in the two top charts in Figure 1.4. Since 2011, expenditure exceeded contributions each year.

As the size of the Fund grows, the rate of return becomes more critical to enhancing long-term sustainability. As shown above, rates of return have been volatile since 2007. This volatility has been due mainly to more equities in the portfolio. .

Administrative costs as a percentage of contribution income trended upwards for over 20 years but have gradually trended downwards in the last eight years, averaging 17.0% of contribution income in the 3-year review period.

Chapter 2 Recent NIS Experience

2.1 Amendments to Act & Regulations

There were no amendments made to the Act or Regulations between 2020 and 2022.

The following reforms which took effect in 2016 are being gradually phased in as scheduled:
Pensionable Age and the number of contributions required for a full Age pension are being increased as follows:

Table 2.1. Scheduled Adjustments to Pensionable Age & Contribution Requirement

Period	Pensionable Age	# of contributions required for full Age pension
2022 – 2024	63	650
2025 – 2027	64	700
2028+	65	750

For insureds at Pensionable Age who do not meet the minimum contribution requirement shown above, but have at least 500 weeks of contributions, a proportionately reduced pension will be available up to 2027. The proportion is the number of weekly contributions made to the number required for a full pension at the time of award.

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

2.2 Fund Financial Experience

The COVID-19 pandemic had a relatively mild impact on the SVG economy with real GDP contracting by between 3% and 4% in 2020. For the NIF, the main effects were a reduction in contribution income and the $3.0 million paid out in temporary unemployment benefits. Table 2.2 contains summary income and expenditure amounts for 2020 to 2022. A more detailed version of Fund finances for these years may be found in Appendix D.

Noteworthy from experience over the 3-year review period are:

- Contribution income in 2021 was higher than in 2019 (pre-Covid).
- The significant downturn in international equity markets in 2022 resulted in a net loss on investments.
- Benefit expenditure increased each year as expected.
- Administrative expenses reduced over the period.

Table 2.2. NIF Income & Expenditure, 2020 – 2022 (millions of $'s)

	2020	2021	2022
Income			
Contributions (incl. impairment losses)	67.1	68.2	73.4
Investment	28.6	20.2	(2.8)
Other	2.1	0.3	0.3
Total	**97.8**	**88.7**	**71.0**
Expenditure			
Benefits (incl. NPF)	77.1	82.2	85.5
Administrative	12.0	11.3	11.3
Other	-	(2.4)	2.0
Total	**89.1**	**91.1**	**98.8**
Excess of Income over Expenditure	**8.7**	**(2.4)**	**(27.8)**
Benefit Reserves	**497.2**	**494.8**	**467.0**

Totals may be off due to rounding.

2.3 Benefit Branches & Reserves

The summary of NIS finances presented in the previous section shows total income and expenditure, internal accounting separates finances into benefit branches. Each benefit is allocated to a branch and each benefit branch is allocated a certain percentage of contribution income, investment income and administrative costs. The National Insurance Fund also comprises two other reserves – National Provident Fund and Fair Value Reserve. Table 2.3. below shows the total for each reserve at the end of 2022.

Table 2.3. Non-Benefit Reserves

Reserve	Description	Dec. 2022 (in millions)
Short-term	Funds set aside for the payment of short-term benefits	$33.6
Long-term	Funds set aside for the payment of long-term benefits or pensions	$311.6
Employment Injury	Funds set aside for the payment of employment injury benefits	$94.3
National Provident Fund (NPF) Reserve	Accumulated NPF balances less members' claims settled.	$31.6
Accumulated Other Comprehensive Income (OCI)	Cumulative gains and losses on revaluation of freehold properties and investments that are carried at Fair Value	($4.1)
Total Reserves		**$467.0**

For the analysis and projections of this actuarial review all reserves listed above are considered available for the payment of future obligations.

It should be noted, however, that the existence of branches does not affect the overall financing or sustainability of the full National Insurance Fund.

The financial experience of each branch and detailed benefit experience for 2020 to 2022 may be found in Appendix E.

2.4 Experience Compared with Projections of the 11th Actuarial Review

In the 11th Actuarial Review, projections were prepared under three different sets of demographic and economic assumptions. Shown below is a comparison of actual cumulative experience over the 3-year period with the projections of the "Best Estimate" scenario of the 11th Actuarial Review.

Table 2.4. Projections from 11th Actuarial Review Compared with Actual Experience

	2020 -2022 Projected (millions of $'s)	2020-2022 Actual (millions of $'s)	% Difference
Contribution Income	$208.8	$208.8	In line with projected
Investment Income	$60.2	$46.6	23% below projected
Benefit Expenditure	$244.9	$244.8	In line with projected
Administrative Expenditure	$33.7	$34.5	2% above projected
2022 Year-end Reserves*	$483.0	$467.0	3% below projected
Reserve-Expenditure Ratio (end of period)	4.9	4.8	Slightly below projected

* Includes NPF and Accumulated OCI reserves

2.5 Investments

At the end of 2022, National Insurance Fund investments, including cash and equivalents, stood at $437.8 million down from $444.6 million at the end of 2019. During the review period, the average yield on investments and reserves were 3.7% and 3.2%, respectively.

The following table provides a summary of the investment mix of the National Insurance Fund at year-ends 2019 and 2022. Since the Fund strategically continues to hold close to 25% in cash and cash equivalents, these have been included as investments for this analysis. Material changes in investment allocations during the review period include a significant decrease in the value of loans and an increase in real estate holdings.

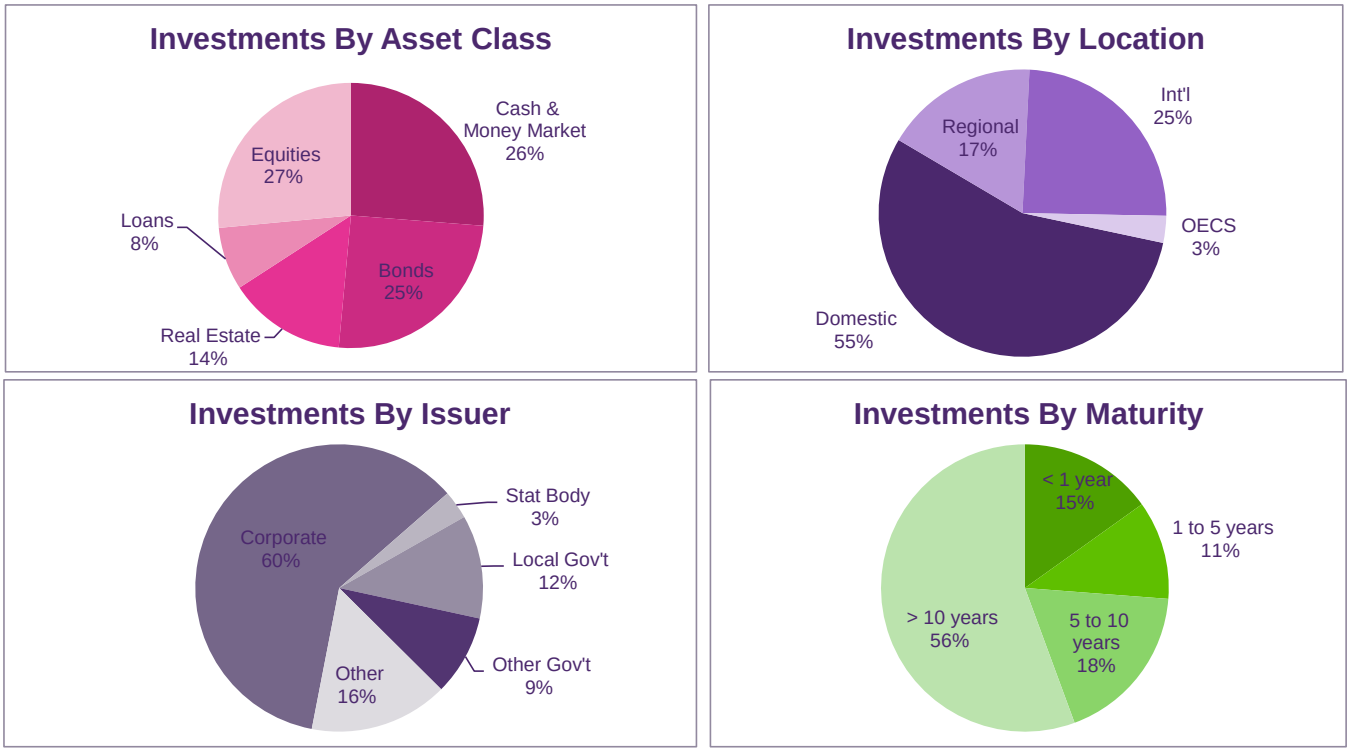
Table 2.5. Summary of Cash & Investments, Year-end 2022 & 2019 (millions of $'s)

Investment Category	2022			2019	
Cash & Cash Equivalents	$114.9	26.2%		$108.5	24.4%
Bonds	$110.5	25.2%		$110.9	24.9%
Loans	$33.5	7.7%		$85.3	19.2%
Equities	$87.8	20.1%		$82.6	18.6%
Interest in Associate	$28.2	6.4%		$25.1	5.6%
Real Estate	$62.9	14.4%		$32.2	7.3%
Total	**$437.8**	**100.0%**		**$444.6**	**100.0**

Notes: Totals may be off due to rounding
Real estate includes land at Peter's Hope

Diversification is a critical component in the investment of social security funds. How well investments are diversified can be assessed using four criteria:- across various asset classes, across maturity dates, across different locations and by issuer of the underlying securities. The following charts illustrate the diversification of NIF investments as of December 2022.

Figure 2.1. Investments, December 2022



Note: In the 11th Actuarial Review investments in Bank of SVG were incorrectly classified under Statutory Bodies but for this report they are considered as Corporate.

A summary of the asset mix, with specific emphasis on diversity, shows that:

- By asset class:- very well diversified with significant allocations to five different classes of investments.
- By location:- very well diversified with a significant portion (by regional standards) held outside of SVG.
- By issuer:- exposure to the SVG Government and other regional governments is low.
- By maturity:- with the Fund recently entering a decumulation phase, the high concentration in cash and short-term deposits provides greater liquidity than may be required in the short to medium-term .

Further analysis of the Fund's investments at the end of 2022 reveals that 50% of all cash and deposits, and 21% of all investments, are held in the Bank of SVG.

NIF investments are guided by a Statement of Investment Policy & Procedures which was last accepted and approved in 2022. This Policy sets out investment objectives and guidelines for the Fund and defines the management structure and monitoring procedures for both internal and external investment management. It also includes a desired asset allocation policy for the Fund. The following table shows the asset mix as of December 31, 2022, compared with the acceptable ranges found in the Investment Policy & Guidelines.

Table 2.6. Asset Mix Compared to Investment Policy Strategic Allocation, Dec. 2022

Asset Class/Region	Target	Actual	Variance
Within SVG	Minimum 50%	55.2%	In line
SVG Public Sector	Maximum 30%	14.9%	In line
SVG Government	Maximum 20%	11.6%	In line
Local Domestic National Banks	Maximum 20%	21.0%	Slightly over
Cash & Money Market	10% to 30%	26.2%	In line
Bonds (& Loans)	35% to 45%	32.9%	Slightly under
Equities	20% to 30%	26.5%	In line
Real Estate (Local & Overseas)	20%	14.4%	Significantly under

Chapter 3 Assessment of Performance & System Design

National Insurance registration and the payment of contributions are mandatory for all employed persons but voluntary for self-employed persons. It has a defined benefit structure where the rules governing eligibility for benefits and the amounts payable are defined in statute. The NIS is expected to be perpetual. 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.

Following is a brief assessment of four of the NIS's primary objectives:- coverage, pension adequacy, financial stability and administrative efficiency.

- Coverage, which looks at how well workers of all sectors are covered for income security in old age;
- Pension adequacy, which relates to the ability of pensions to provide a decent standard of living;
- Financial sustainability, which ultimately relates to the affordability of the system to future contributors; and
- Administrative efficiency, which relates to how well and at what cost operational functions such as collection of contributions and adjudication of claims are conducted along with fulfilling all statutory requirements.

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 79% of NIF benefit expenditure in 2022.

3.1 Coverage

Coverage concerns relate to actual participation rates by formal and informal sector workers and the proportion of elderly residents receiving an NIS pension. The following six estimates for 2022 provide a fairly good analysis of current coverage levels:

a)	% of employed workers contributing to the NIS	80% to 85%
b)	% of contributors that have their wages fully covered by the NIS	92%
c)	% of self-employed persons contributing	Approximately 16%
d)	% of the elderly resident population who receive an NIS pension	Approximately 50%
e)	% of deaths resulting in funeral grants (2020 & 2021)	45%
f)	% of births resulting in maternity grants (2020 & 2021)	34%

The first two indicators above shows that most employed persons participate in the NIS and that most have their wages fully covered even though an adjustment to the wage ceiling has not occurred since 2006. For this reason, the current wage ceiling is still considered to be at an adequate level even though NIS is gradually losing relevance to higher paid individuals.

The portion of elderly residents receiving a pension as well as Funeral and Maternity grants awarded relative to births and deaths are all low. Together, these confirm that many workers, both past and present, are not regularly contributing to the NIS. These low rates are likely attributable to a large segment of the workforce being informal and/or self-employed and not registering and paying NIS contributions. Therefore, while the NIS provides a high level of coverage to the employed population the actual level of protection provided to others is low.

3.2 Adequacy

Benefit adequacy can be broken down into two components:

- Current adequacy: Are pensions adequate today?
- Future adequacy: Under current provisions, will the pension be adequate in the future?

3.2.1 Current Adequacy

The minimum contributory pension is $70 per week or $303 per month. This equates to 21% of the average insurable wage. Relative to wages the minimum pension is slightly low. Although not legislated, the practice of adjusting pensions periodically provides good support to maintaining benefit adequacy. The last increase took effect in January 2014.

For pensioners receiving more than the minimum, their pension replacement rates are initially between 30% and 60% of their final average insurable wage, lower for the small percentage of very highly paid persons. This replacement level is considered adequate.

3.2.2 Future Adequacy

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

Regular ceiling and pension adjustments will ensure benefit adequacy both at the time of award and throughout the pension payout period as the pension maintains its initial purchasing power. But given that neither the wage ceiling nor pension adjustments is legislated, there is some uncertainty re future benefit adequacy. Ad hoc ceiling increases also affects future benefit adequacy favourably for those who have earnings well in excess of the ceiling. The last ceiling increase was in 2006.

When compared with targeted replacement rates for mandatory social security pensions in OECD countries, the SVG NIS provides relatively high replacement rates. The significant difference between pensions in old age in SVG compared with OECD countries is the additional pensions that most in OECD countries can look forward to – state means-tested pensions to those at the lower end of the income scale and private pensions (employment linked or personal) for others. Given the low level of pension participation and personal long-term savings by workers, the higher replacement rate targets in SVG, which exceed minimum ILO standards, are considered reasonable.

NIS pensions are not intended to provide all of the income required to support oneself in old age. Based on the above, current 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 and employment injury benefits provide almost full income protection for all contingencies that could lead to involuntary loss of employment income. The sole benefit not currently provided is one that covers loss of income due to involuntary unemployment.

3.3 Financial Sustainability

Assessing the sustainability of a national pension system is complicated. Given the perpetual nature of these systems, some of 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 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 approximately 10 to 15 more years. However, with income from contributions and investments no longer sufficient to meet expenditure, increasing amounts of reserves/assets will have to be liquidated. This is a natural progression for partially funded national pension systems.

It is not possible to determine today the highest contribution rate that workers and employers will be able to afford, or be willing to pay, twenty to thirty years from now. With reserves having peaked and reduced rates of return on investments, contributions will have to account for the greater portion of future Fund income.

Based on regional and international comparisons the NIS provides a relatively generous benefits package for a moderate contribution rate and thus its financial sustainability may come into question. The key challenge for current and future Boards and governments regarding financial sustainability is determining when and by how much the contribution rate will be increased, and benefit promises reduced.

3.4 Administrative Efficiency

An average of 16.6% of contribution income, 7.6% of contributions plus benefits, or 1.6% of insurable wages, was spent on operating expenses over the three-year review period. These rates are down from three years prior.

Regarding effectiveness of its operation, it appears that the Board performs reasonably well at collecting contributions and adjudicating claims and paying benefits in a timely manner. Annual financial statements are audited, and triennial actuarial reviews conducted as required.

3.5 Comparisons with Other OECS Countries

Even within the OECS, it is difficult to compare social security schemes given the special peculiarities of each country's system, history, and economy. For example, the age of the scheme affects its current financial state as does the level of the initial contribution rate and reforms made since inception. The following table highlights the similarities and differences of the SVG NIS with other national insurance and social security schemes in the OECS in several key areas.

Table 3.1. SVG NIS Compared with Other Social Security & NIS Systems in the OECS, November 2023

Contribution rate (private sector employees)	The 10% rate in SVG is the sane as Anguilla and St. Lucia. All others, except St. Kitts-Nevis, are gradually increasing to 15% or 16%. In late 2023 contribution rates are 11% in St. Kitts-Nevis, 12% in Grenada and Montserrat, 13% in Dominica and 15% in Antigua-Barbuda.
Wage ceiling	Only Montserrat ($4,000) has a lower wage ceiling than SVG ($4,333).
Self-employed coverage	While voluntary in SVG, St. Lucia and Montserrat, coverage is mandatory in Grenada, St. Kitts-Nevis and Antigua-Barbuda
Benefits package	The standard package includes short-term benefits, long-term (pension) benefits and employment injury benefits and there are minor differences only. Grenada is the first in the OECS to add an unemployment benefit (May 2023)
Pensionable Age	Grenada (60) and St. Kitts-Nevis (62) are unchanged since inception, but Grenada will start moving to 65 between 2024 and 2028. Antigua-Barbuda and SVG are gradually increasing to 65. Dominica, Montserrat and St. Lucia are already at 65 while Anguilla always had 65. Montserrat eliminated the Early Age pension in 2022. All others who increased pensionable age have kept 60 as the first age for reduced Age pensions.
Pension Accrual rates	Other than Antigua-Barbuda (50%) and Montserrat (55%), all others have a maximum pension of 60% of average insurable wages. The minimum accrual rate is 30% for the minimum qualifying number of weeks in most except in Montserrat and Antigua where it is 25%.
Minimum Pension	Dominica ($158), Grenada ($201) and St. Lucia ($300) have lower monthly minimum pensions than SVG's ($303). Higher minimums are paid in Montserrat, Antigua-Barbuda and St. Kitts-Nevis.

Chapter 4 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 NIS finances. Therefore, to best assess the Fund's long-term costs and sustainability, projections of St. Vincent & The Grenadines' total population and the economy are required. For this review 75-year projections have been performed.

Prior to 1991 the population increased steadily between census counts. Since then, however, there has been very little growth, if any. 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 considered. Core projections have been performed using assumptions that reflect best estimates and the projection results based on this assumption set is referred to throughout this report as "*Best Estimate.*"

Given the uncertainty inherent in forecasting long periods, projections using two additional sets of assumptions have also been performed. 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 5.

4.1 Population Projections

4.1.1 Assumptions

Projections of St. Vincent & The Grenadines' population begin with the 2012 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 SVG and is the most volatile of the three factors. The 2012 population census placed the resident population at 109,991.

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. Statistics Office estimates place the TFR between 1.6 and 1.7 in 2019 to 2021. For these Best Estimate projections, it is assumed that TFR's will decrease to 1.6 in 2025 and remain constant thereafter.

The United Nations Latin America life table with life expectancies at age 65 of 14.7 for males and 16.1 for females is assumed for 2022. Improvements in life expectancy are assumed.

The third factor that affects population size is migration. This is the difficult factor to measure. Using the 2012 census count and the Statistics Office's 2022 population estimate, implied net out-migration between 2012 and 2022 is estimated at between 500 and 600 per year.

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 changes in the population and labour force that will provide the capacity for additional output.

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.

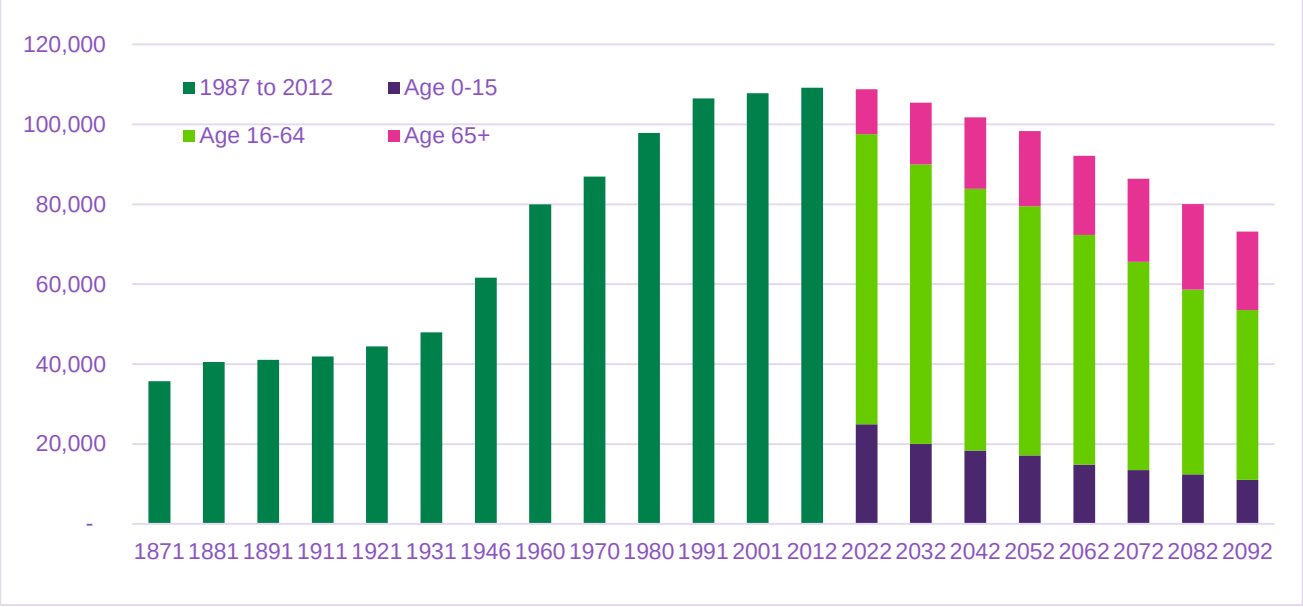
Table 4.1. Principal Demographic & Economic Assumptions

		11th Actuarial Review	12th Actuarial Review
Total Fertility Rate		Decreasing from 2.14 in 2016 to 1.8 in 2025	Decreasing from 1.68 in 2022 to 1.6 in 2025, constant thereafter
Mortality Improvements		"Slow" Unted Nations rates	Society of Actuaries Scale AA improvement rates
Net In-Migration Per Annum		-900 p.a. in 2016 decreasing to -200 in 2050, constant thereafter	-600 p.a. in 2020 decreasing to -100 in 2050, constant thereafter
Real GDP Growth Rates	Short-term Medium term Long-term	2.0% decreasing to 1.5% in 2021 1.5% 0.5%	6.0%, 4.8%, 3.5%, 2.7%, 2.7% 1.5% from 2028 to 2034 0.5%
Real Increase in Wages		0.6%	0.5%
Long-term Inflation		2.0%	4.6% in 2023, 2.0% thereafter

4.1.2 Projection Results

The following chart shows census counts from 1871 to 2012, this report's estimate of the 2022 population which is slightly lower than official estimates, and this report's projections through 2082. As shown, St. Vincent & The Grenadines' population is projected to start declining to around 75,000 residents in 2092. (See Table C.1 in Appendix C for specific population projections results.)

Figure 4.1. Past & Projected SVG Populations *(Best-Estimate scenario)*

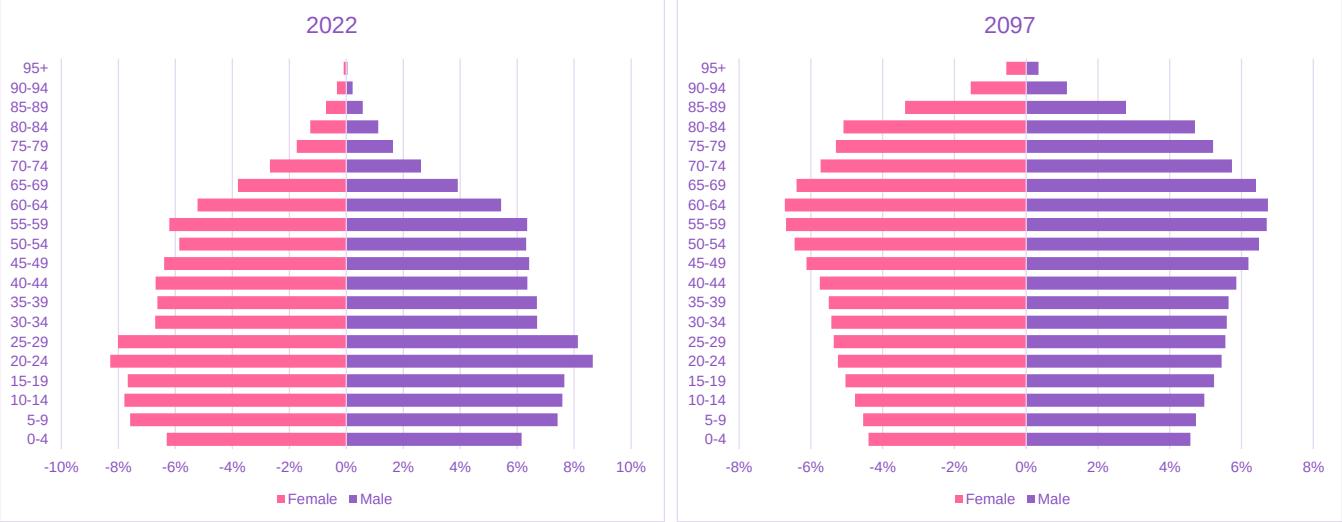


Note: The projections presented in this report have been prepared for the sole purpose of determining the implications for NIF finances.

While projected future population size is important, the age distribution is more critical for the NIS, as pensions to the elderly represent the bulk of expenditure and contributions will be paid by those in the working-age groups. As shown above, while the number of children and working-age persons is projected to decrease over time, the elderly population is expected to increase.

The projected ageing of the population between 2022 and 2097 is also illustrated in Figure 4.2 below.

Figure 4.2. Age Distribution of SVG Populations – 2022 & 2097 *(Best-Estimate scenario)*



These population projections are similar to those presented in the 11th Actuarial Review.

4.2 National Insurance Fund Projections

Best Estimate National Insurance Fund demographic and financial projections have been modeled using the best-estimate population results, best estimate NIS-specific assumptions and the contribution and benefit provisions that were in place on January 1, 2023, with provisions made for reforms that are being phased in gradually.

4.2.1 Assumptions

Key National Insurance assumptions are shown below.

Table 4.2. National Insurance Best Estimate Assumptions

	11th Review	12th Review
Avg. Contribution Rate	9.87% in all years	9.85% in all years
Insurable Wage Ceiling Increases	$4,333 per month in 2019, increasing annually thereafter by the change in average wages	$5,000 per month in 2026, increasing annually thereafter by the change in average wages
Short-term Benefits	0.52% of IE increasing to 0.6% over 20 years	0.5% of IE increasing to 0.6% over 20 years
Employment Injury Benefits	Increasing from 0.04% to 0.06% of IE over 20 years	Increasing from 0.02% to 0.04% of IE over 20 years
Pension Increases	5% in 2019 then annually thereafter by 2.0%	5% in 2024 then annually thereafter by 1.5%
Long-term Yield on Reserves	4.0% (2.0% above inflation)	4.0% (2.0% above inflation)
Other Income	2% of Contribution Income	-
Administrative Expenses	Decreasing from 1.65% to 1.5% of IE over 20 years	Decreasing from 1.45% to 1.3% of IE over 20 years

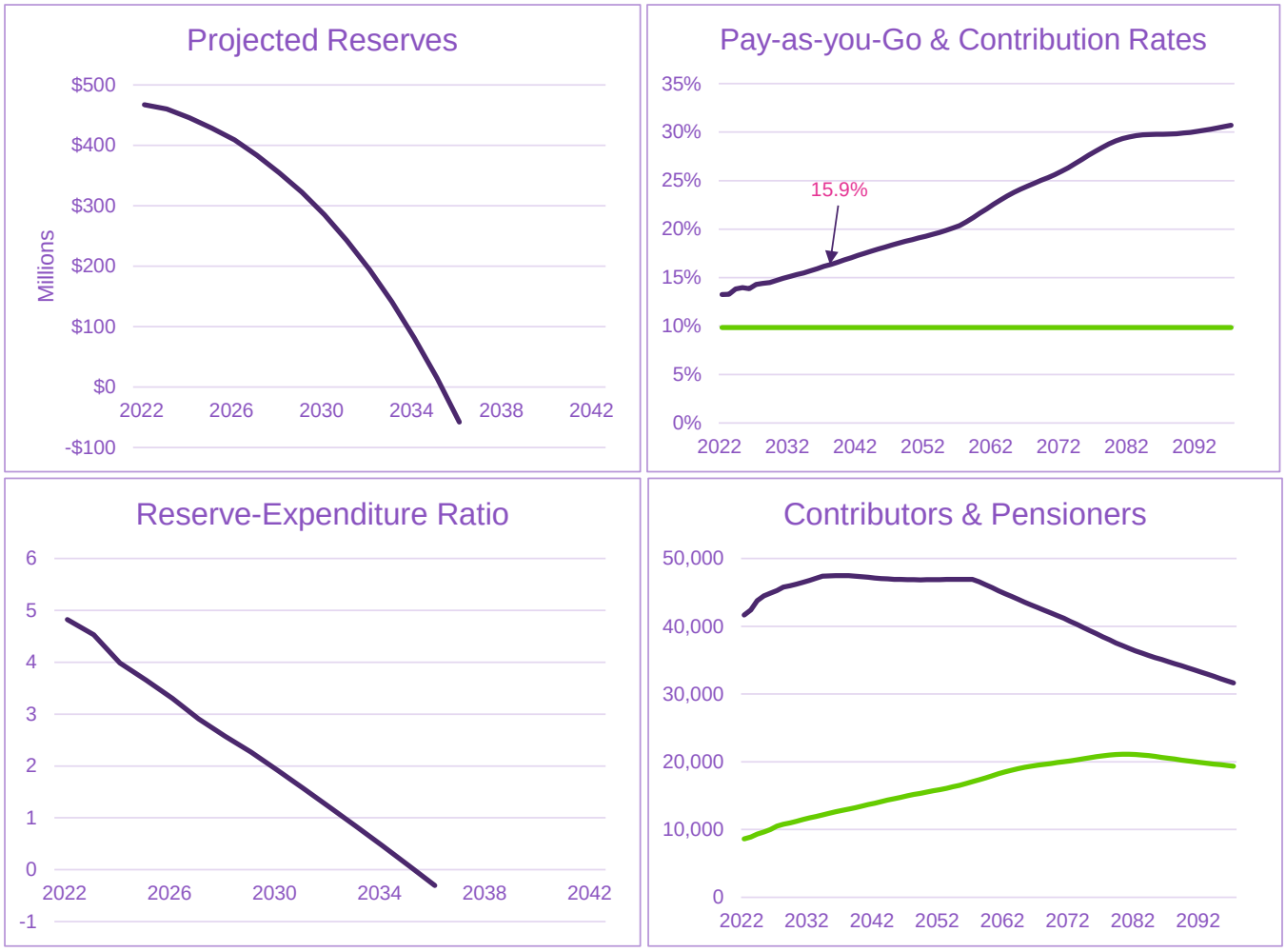
It should be noted that the rates in the above table are not targets which the NIS should aim to achieve but instead are the assumptions on which the projections are based.

By assuming that the wage ceiling and pensions in payment will be increased every year, it is being assumed that the prevailing level of coverage and income security made possible by the ceiling and minimum pension will be generally maintained throughout the projection period. For this review, future pension increases are assumed to be slightly less than inflation.

4.2.2 Projection Results

For this report, the projections for the three benefit branches, NPF and Fair Value Reserves, are combined. Total reserves as of December 2022 were $467 million. The charts in Figure 4.3 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.

Figure 4.3. Projection Results – Best Estimate Scenario

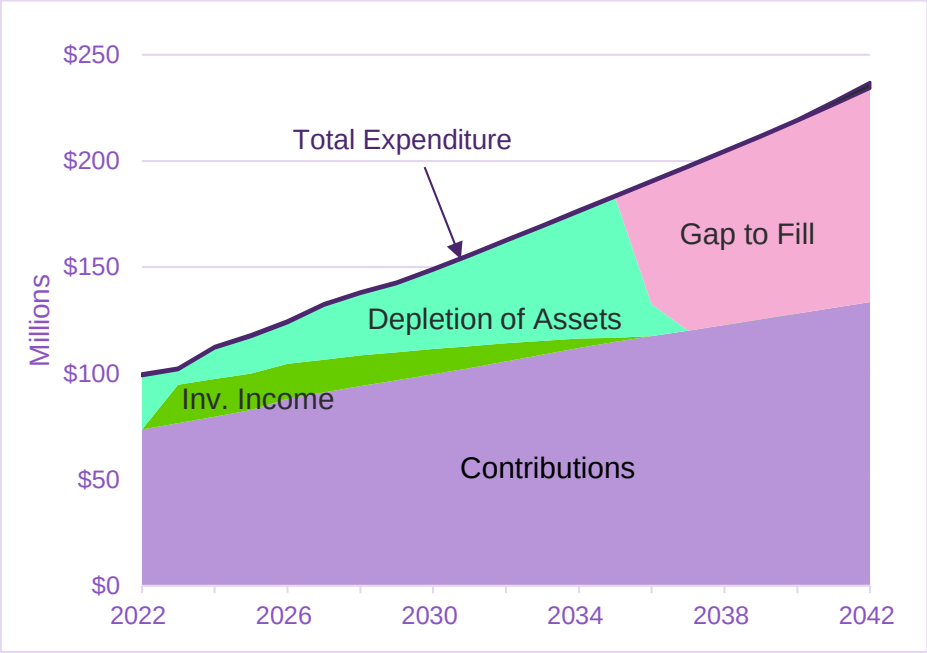


Key results of these projections are summarised as follows:

1. Expenditure will exceed contribution income in each year.
2. Expenditure will exceed all income in each year except if equities rally in 2023 or 2024.
3. Reserves are projected to be exhausted in 2036.
4. When reserves are exhausted, expenditure relative to total insurable wages (pay-as-you-go rate) is estimated at 15.9%. The contribution rate will therefore have to be increased to this level to meet total expenditure.
5. The pay-as-you-go rate will increase to approximately 20% in 2055 and 30% in 2090.
6. The number of contributors for each pension in payment is expected to fall from 4.8 in 2022 to under 2 by 2072.

The following chart illustrates how the sources of financing expenditure will change as the Fund moves from a state of expenditure being 35% more than contributions in 2022 to 62% more than contributions when reserves are exhausted in 2036.

Figure 4.4. Sources of Financing Expenditure, 2022 to 2042



1. With expenditure projected to exceed contributions plus investment income every year, assets will have to be liquidated to help meet expenditure.
2. As more and more assets are liquidated, they will eventually run out (2036). If the contribution rate is not increased, the income shortfall (pink section) in 2036 is estimated at 6.3% of insurable wages. The required contribution rate would then have to 16%.

Numerical details of the financial and demographic projections for the *Best Estimate* scenario are provided in Tables 4.3 to 4.5.

Table 4.3. Projected Income & Expenditure - Best Estimate (millions of $'s)

Year	Cash Inflows				Cash Outflows					Reserves	
	Contribution Income	Investment Income	Other Income	Total	Benefits	Admin. Expenses	Other Expenses	Total	Surplus/ (Deficit)	End of Year	# of times current year's expenditure
2020	67.1	28.6	2.1	**97.8**	77.1	12.0	0.0	**89.1**	**8.7**	**497**	5.6
2021	68.2	20.2	0.3	**88.7**	82.2	11.3	(2.3)	**91.1**	**(2.4)**	**495**	5.3
2022	73.4	(2.8)	0.3	**71.0**	85.5	11.3	2.0	**98.8**	**(27.8)**	**467**	4.8
2023	76.5	18.2	0.0	**94.7**	90.5	11.1	-	**101.6**	**(6.9)**	**460**	4.5
2024	79.6	17.8	0.0	**97.4**	100.2	11.7	-	**111.8**	**(14.4)**	**446**	4.0
2025	82.7	17.1	0.0	**99.8**	105.2	12.0	-	**117.3**	**(17.4)**	**428**	3.7
2026	88.0	16.4	0.0	**104.4**	111.0	12.8	-	**123.8**	**(19.4)**	**409**	3.3
2027	90.9	15.5	0.0	**106.4**	118.8	13.1	-	**131.9**	**(25.5)**	**383**	2.9
2028	94.0	14.5	0.0	**108.4**	124.1	13.5	-	**137.5**	**(29.1)**	**354**	2.6
2029	96.7	13.3	0.0	**109.9**	128.4	13.8	-	**142.1**	**(32.2)**	**322**	2.3
2030	99.5	11.9	0.0	**111.4**	134.3	14.1	-	**148.4**	**(37.0)**	**285**	1.9
2031	102.4	10.4	0.0	**112.8**	140.7	14.5	-	**155.2**	**(42.4)**	**243**	1.6
2032	105.5	8.6	0.0	**114.1**	147.3	14.8	-	**162.1**	**(48.0)**	**195**	1.2
2037	120.1	0.0	0.0	**120.1**	180.5	16.4	-	**197.0**	**(76.8)**	**-139**	(0.7)
2042	133.5	0.0	0.0	**133.5**	216.4	17.7	-	**234.1**	**(100.6)**	**-668**	(2.9)
2052	165.5	0.0	0.0	**165.5**	302.0	21.8	-	**323.8**	**(158.3)**	**-2,575**	(8.0)
2062	199.4	0.0	0.0	**199.4**	430.0	26.3	-	**456.3**	**(257.0)**	**-6,294**	(13.8)
2072	232.1	0.0	0.0	**232.1**	580.8	30.6	-	**611.4**	**(379.4)**	**-13,243**	(21.7)
2082	265.5	0.0	0.0	**265.5**	760.5	35.0	-	**795.5**	**(530.0)**	**-25,220**	(31.7)
2092	308.5	0.0	0.0	**308.5**	901.3	40.7	-	**942.0**	**(633.4)**	**-44,469**	(47.2)

***Table 4.4. Projected Benefit Expenditure - Best Estimate** (millions of $'s)*

Year	Long-term Pensions & Grants					Short-term Benefits	Emp. Injury Benefits	NPF	Benefits as a % of:	
	Age	Invalidity	Survivors	NAAP & EAB	All Grants				Insurable Wages	GDP
2020	58.2	1.1	5.4	0.9	3.4	6.2	0.3	1.5	11.3%	3.3%
2021	63.4	1.0	6.2	0.8	4.0	4.8	0.3	1.7	11.9%	3.5%
2022	67.8	1.1	6.8	0.7	3.0	4.3	0.3	1.7	11.5%	3.3%
2023	72.6	1.4	6.9	0.5	3.4	3.8	0.3	1.5	11.8%	3.3%
2024	80.9	1.5	7.8	0.4	3.6	4.1	0.3	1.5	12.4%	3.5%
2025	85.1	1.5	8.5	0.3	3.7	4.3	0.4	1.3	12.5%	3.4%
2026	89.9	1.6	9.3	0.2	3.9	4.6	0.4	1.0	12.4%	3.5%
2027	96.9	1.6	10.1	0.2	4.0	4.8	0.4	0.8	12.9%	3.5%
2028	101.3	1.7	10.8	0.2	4.1	5.0	0.5	0.5	13.0%	3.6%
2029	104.8	1.8	11.5	0.1	4.1	5.2	0.5	0.3	13.1%	3.6%
2030	110.1	1.9	12.1	0.1	4.2	5.4	0.5	-	13.3%	3.6%
2031	115.4	2.0	12.8	0.1	4.3	5.6	0.6	-	13.5%	3.6%
2032	120.9	2.1	13.4	0.1	4.3	5.8	0.6	-	13.7%	3.7%
2037	148.9	2.6	16.7	0.0	4.6	7.0	0.8	-	14.8%	3.9%
2042	179.5	3.1	20.0	0.0	4.8	8.1	1.0	-	16.0%	4.1%
2052	254.7	4.3	26.4	-	5.1	10.1	1.3	-	18.0%	4.5%
2062	371.9	5.8	33.5	-	5.2	12.1	1.6	-	21.2%	5.0%
2072	511.2	7.2	41.6	-	4.8	14.1	1.9	-	24.7%	5.4%
2082	680.6	7.7	49.6	-	4.2	16.2	2.2	-	28.2%	5.7%
2092	811.0	9.6	56.1	-	3.3	18.8	2.6	-	28.8%	5.4%

Table 4.5. Projected Contributors & Pensioners at Year-end - Best Estimate

Year	# of Contributors	# of Pensioners					Total # of Pensioners	Ratio of Contributors to Pensioners
		Age	Invalidity	Survivors	Death & Disablement	NAAP & EAB		
2020	43,459	6,308	194	1,347	34	459	**8,342**	**5.2**
2021	41,521	6,745	180	1,507	35	396	**8,863**	**4.7**
2022	42,504	6,880	163	1,531	32	338	**8,944**	**4.8**
2023	42,390	7,170	184	1,502	37	231	**9,125**	**4.6**
2024	43,764	7,477	189	1,599	39	182	**9,486**	**4.6**
2025	44,496	7,690	188	1,702	40	143	**9,764**	**4.6**
2026	44,868	7,948	191	1,802	42	112	**10,094**	**4.4**
2027	45,271	8,347	196	1,894	43	88	**10,568**	**4.3**
2028	45,767	8,550	201	1,967	45	68	**10,831**	**4.2**
2029	45,980	8,675	207	2,020	46	52	**11,000**	**4.2**
2030	46,224	8,899	214	2,052	47	40	**11,252**	**4.1**
2031	46,493	9,118	218	2,074	48	31	**11,489**	**4.0**
2032	46,783	9,332	223	2,092	48	24	**11,719**	**4.0**
2037	47,480	10,320	247	2,188	52	5	**12,812**	**3.7**
2042	47,139	11,309	259	2,259	54	1	**13,882**	**3.4**
2052	46,905	13,240	284	2,306	57	-	**15,887**	**3.0**
2062	44,819	15,859	297	2,282	58	-	**18,496**	**2.4**
2072	40,734	17,591	288	2,192	56	-	**20,127**	**2.0**
2082	36,366	18,717	243	2,052	50	-	**21,062**	**1.7**
2092	33,244	17,783	237	1,823	46	-	**19,889**	**1.7**

# of pensioners in 2020 to 2022 are those with at least one payment during the year

4.3 General Average Premium & Actuarial Balance

For social security 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 insurable wages. For private pension plans, however, where full funding is the financing objective, there are other measures of the system's cost that may be useful for policy makers to be aware of.

The general average premium is the average level contribution rate required over the next 75 years to fully cover total expenditure during that period. This rate may be looked at as the average long-term cost of the complete NIS benefits package. For the Best Estimate projections, the general average premium is 20.5%.

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

1. the sum of the beginning reserves and the present value of future contributions (funds available to meet expenditure), and
2. the present value of future expenditure,

divided by the present value of future insurable wages. This formula produces a rate that indicates the adequacy or insufficiency of the present contribution rate for a given period. For the National Insurance Fund, the deficiency expressed in dollars and as a percentage of insurable wages is shown in Table 4.6.

Table 4.6. Actuarial Balance 2023 – 2097 ($'s are in millions)

	2022 Year-end Reserves	$467
Plus	PV of Future Contributions	$3,435
Minus	PV of Future Expenditure	$6,935
Equal	PV of Surplus/(Shortfall)	($3,053)
	Actuarial Balance (% of Insurable Wages)	(8.8%)

Consistent with previous discussions, the negative actuarial balance indicates that together with reserves, the current contribution rate is insufficient to meet future expenditure for the next 75 years. The shortfall of 8.8% indicates that the average contribution rate would have to be increased to almost 19% for the entire period for reserves to last up to 2097.

4.4 Comparison with Results of the Previous Actuarial Review

The projection results presented earlier in this chapter differ only slightly from those of the 11th Actuarial Review as shown in the following table.

Table 4.7. Summary Results From 11th & 12th Actuarial Reviews

	12th Actuarial Review	11th Actuarial Review
Expenditure Exceeds Income	All years	2021
Reserves Depleted	2036	2034
General Average Premium^	19.9%	20.0%
Pay-as-you-go rate in 2079	28.8%	29.1%

The projected two extra years before Fund depletion is due primarily to the ½% lower assumed rate of pension increases. The minimal reduction in General Average Premium is due to lower assumed pension increases offsetting the effect of projections of the 12th Review covering 75 years compared to 60 years in the 11th Review.

4.5 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 National Insurance assumptions are presented in the following chapter. However, certain National Insurance factors such as yield on reserves and contribution collection rates will also impact the Fund's cash flows and medium-term outlook. The change in Reserve-Expenditure Ratio and year reserves are projected to be exhausted are shown in the following table.

Table 4.8. Sensitivity Tests – NIS Factors

Assumption	Differs from *Best Estimate*	Reserve-Exp Ratio in 2030	Reserves Depleted
Best Estimate		1.9	2036
Yield on Reserves (4.0%)	+1%	2.2	2037
	-1%	1.7	2035
Contribution Collections (with no effect on benefits)	+2%	2.0	2036
	-2%	1.9	2035
Pension Increases (1.5% p.a. from 2025)	None (after assumed 2024 adjustment)	2.3	2038
	+1% above assumed	1.7	2035
One-time Shock in 2026	$20m payout & 10% reduction in contributions in 2026 & 2027	1.7	2035

As shown above, the medium-term outlook for the Fund is only slightly better/worse if yields on reserves and contribution collections are greater/lower than assumed, and minimal for a one-time shock that affects both income and expenditure. Pension increases have a slightly greater effect. These small changes in outlook are a consequence of the significant effect that changing demographics and generous pensions will have on future expenditure assuming no reforms are made.

Chapter 5 Alternative Scenarios

Best Estimate projections up to 2097 presented in the previous chapter provide estimates of future National Insurance Fund demographics and finances under best-estimate assumptions. Given the uncertainty in forecasting such a long period, two alternative scenarios that highlight the sensitivity of the results to differences in assumptions regarding future outlook have been performed. These alternative projection sets encompass assumptions that are generally more optimistic and more pessimistic than those of the *Best Estimate* projections. However, since long-term sustainability will likely be more sensitive to future population growth and economic development than NIS-specific factors such as compliance rates and operating costs, the basis for the alternative scenarios also focus on differences in population and economic outlooks.

The *Optimistic* scenario represents a larger economy with higher wages, lower pensions, better contribution compliance and higher investment returns while the *Pessimistic* scenario represents a smaller population with lower wages and larger pensions, lower contribution compliance and lower investment returns. Following is a summary of the main assumptions for the three projection scenarios. The values for all other assumptions are similar across scenarios.

Table 5.1. Principal Demographic, Economic & National Insurance Assumptions

	Optimistic	Best Estimate	Pessimistic
Ultimate Total Fertility Rate	1.8	1.6	1.45
Mortality Improvements	70% of Scale AA	Scale AA	130% of Scale AA
Net (In) Migration Per Annum	60% of Best Estimate *(lower out migration)*	-600 p.a. in 2020 decreasing to -100 in 2050, constant thereafter	140% of Best Estimate *(higher out migration)*
Ultimate Real GDP Growth	½% higher in each year	6.0%, 4.8%, 3.5%, 2.7%, 2.7% from 2023 to 2027, 1.5% from 2028 to 2034, 0.5% thereafter	½% lower in each year
Collection Of Contributions	+2%	-	-2%
Annual Pension Increases (from 2025)	1.0%	1.5%	2.0%
Long-term Yield on Reserves	5.0%	4.0%	3.0%

National Insurance demographic and financial results of the three projection sets are presented in Figure 5.1 and Table 5.2. As expected, the outlook for National Insurance finances is closely linked to the size and age distribution of the general population and National Insurance performance indicators such as contribution collection rates and yield on investments.

Figure 5.1. Projection Results – All Scenarios

Table 5.2. Summary Results – All Scenarios

	Pessimistic	Best Estimate	Optimistic
Expenditure Exceeds Total Income	All Years	All Years	All Years
Year Reserve-Expenditure Ratio reaches 3	2027	2027	2029
Reserve-Expenditure Ratio in 2032	0.5	1.2	2.1
Reserves Depleted	2034	2036	2040
General Average Premium	23.4%	19.9%	16.8%
Pay-as-you-go rate in 2035	17.5%	15.7%	13.4%
Pay-as-you-go rate in 2050	22.3%	18.9%	15.8%
# of Contributors per pensioner – 2050	2.7	3.0	3.4

Chapter 6 Balancing Benefit Adequacy, Contribution Affordability and Long-term Sustainability

NIF sustainability is inextricably linked to the local economy as 100% of contributions and over 50% of investment returns depend on local output. Recent pronouncements of major foreign investment projects could provide hundreds of new jobs.

While positive economic growth with increasing employment, productivity and wage levels will enhance Fund sustainability, contribution and benefit reforms are required.

6.1 Contribution Reforms

Contribution Rate Increases

Given projected Fund depletion in the mid-2030's, contribution rate increases above the current 10% rate are inevitable. Such increases have the most direct link and immediate impact on Fund income. The next set of approved rate increases should reach at least 15% within ten years.

Wage Ceiling Increases or Elimination

Since inception in 1987, four "step-like" adjustments have been made. Increasing or eliminating the wage ceiling is often suggested as a means of raising more revenue. However, analysis of the impact on both additional contributions and the additional benefits earned, shows that overall financial impact is negative as the increase in the value of benefits to those higher paid persons who qualify for as long as the next 20 years, exceeds the accumulated value of their extra contributions.

Periodic ceiling adjustments ensure that the NIS remains relevant to higher income earners. The last adjustment in 2006 saw the ceiling increase from $870 to $1,000 per week. If the next ceiling adjustment exceeds 5% or $50 per week, there should be an adjustment factor applied to average insurable wages when pensions are being calculated to ensure that the increased value of benefits is consistent with the increased contributions collected.

A recommended approach to wage ceiling increases intended to ensure that the NIS retains its relevance for higher paid workers is to adjust the ceiling every year, or possibly every two years, by the actual increase in average wages. Such scheduled adjustments occur in the BVI, The Bahamas and Barbados.

Following is a description of how scheduled increases should be implemented.

1. The Government's Statistic Office creates a National Wage Index using both NIS data (for earnings below the wage ceiling) and income tax Inland Revenue data (for earnings above the wage ceiling) This index will be used to measure the change in average wages each year and serve as the basis for annual or biennial wage ceiling adjustments.
2. The National Wage Index should be published annually by June 30th of each year.

3. By September 1st of each year (or the year prior to a change for biennial adjustments) the NIS will announce the wage ceiling that will apply starting January of the following year. One option for determining each ceiling adjustment is the average change in Wage Index over the prior three years.

6.2 Benefit Reforms

There are four basic means by which future benefit costs can be reduced:

(i) Fewer persons qualifying (eligibility requirements)

(ii) Shorter payment period (start later for Age pension, strict monitoring of ongoing eligibility for Invalidity and Survivors pensions)

(iii) Smaller benefits/pensions (formula adjustments)

(iv) Smaller pension increases (prudent policy decision making)

6.2.1 Old-Age Pension

Age pensions account for almost 80% of total benefit expenditure and thus any meaningful change to future benefit costs must focus primarily on Age pension provisions. Following is a list of specific reforms that could be made to Age pensions to effect reductions in the demographic and/or replacement ratios.

Table 6.1. Options for Reducing Long-term Old-age Pension Costs

Reform Measure	Current Provision	Possible Changes	Rationale
Eliminate Early Age pension	▪ Reduced Age pension from age 60	▪ No pensions before the new pensionable age 65	Reduce cost. Eventually single pension age of 65 as it was at 60 prior to 2017.
Award pensions at a later age	▪ Pensionable Age gradually increasing to 65 in 2028 ▪ Early pension available at age 60	▪ Hasten the increase to 65 – 2027 instead (64 in 2025, 65 in 2027) ▪ Continue increases until age 67 but with longer delays and ½-year steps after age 65 ▪ Increase the first age at which pensions may be claimed to 62 or 63	Reduce the number of years of pensions paid. This also has the effect of increasing contribution income.
Larger reduction factors for Early Age Pension	▪ ½% per month (6% per year) that pension starts prior to pensionable age	▪ Up to ¾% per month (9% per year) that pension starts prior to pensionable age	Discourage early take up of the pension
Award Early Age pension only if retired, or at least substantially retired	▪ No requirement to have retired or reduced employment income	▪ Must be fully retired or at least have earnings no more than 50% of the wage ceiling	Change from an age-based pension to a retirement or income-based pension to reduce the number of pensions in payment
Maximum replacement rate	▪ 60% after 2,250 weeks (approx. 43¼ years)	▪ 55% after 2,200 weeks	This change will have a minimal effect as very few new pensioners have already earned 55%.
Accrual rates	▪ 30% after 15 years, 1% per year thereafter (2028)	▪ 25% after 15 years plus 1.2% per year thereafter	Better match of adequate benefits and affordable contributions.

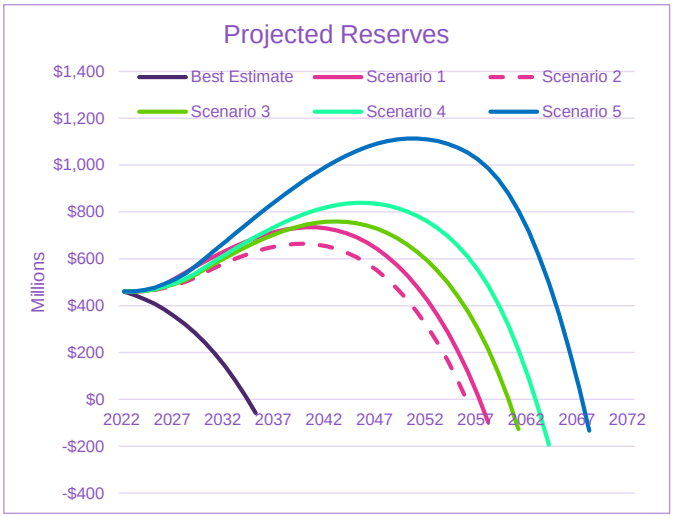
Each measure may not have a major impact on Fund finances in the short to medium term. However, if several are adopted together, projected Fund outlook would be materially enhanced.

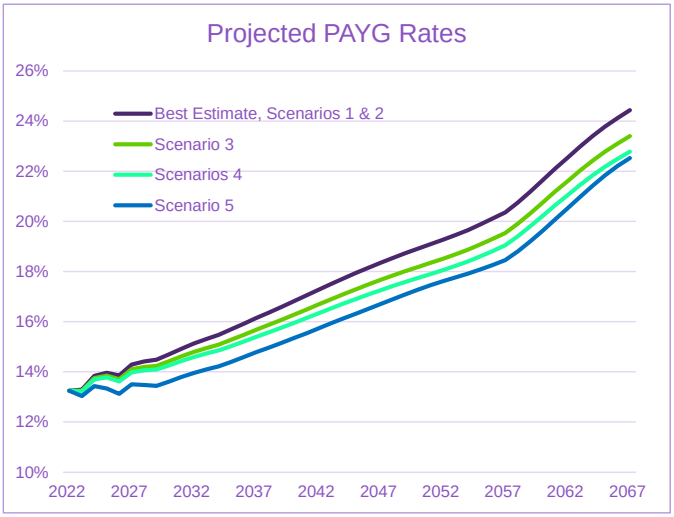
The impact on several sets of reforms is illustrated and described in the next section.

6.3 Projected Effect of Reforms

While emphasis is often placed on the year the Fund is projected to be exhausted, future expenditure expressed as pay-as-you-go rates is perhaps more important when deciding on future reforms. The following charts illustrate both projected reserves and pay-as-you-go rates for several sets of reforms using the *Best Estimate* assumptions.

Figure 6.1. Projected Reserves and Pay-As-You-Go Rates, Reform Scenarios





Reform Scenario	1	2	3	4	5
Contributions (Starting 2024)	To 15% in 2027 – (2% in 2024, 1% in 2025 to 2027)	To 15% in 2030 – (2% in 2024, ½% each year to 2030)	To 15% in 2030 – (2% in 2024, ½% each year to 2030)	To 15% in 2030 – (2% in 2024, ½% each year to 2030)	To 15% in 2030 – (2% in 2024, ½% each year to 2030)
Benefits	No change	No change	5% lower avg. new pension	8% lower avg. new pension	5% reduction in avg. new pension & pensions start 1 year later (on avg.)
General Average Premium	19.9%	19.9%	19.2%	18.8%	18.4%
PAYG in 2040	16.8%	16.8%	16.3%	15.9%	15.3%
Year Reserves Exhausted	2056	2056	2061	2063	2068

- A contribution rate increase does not affect future costs and thus pay-as-you-go rates and the General Average Premium are unchanged.
- A 5% or 8% reduction in average new pension amount can be achieved through formula changes in accrual rates, the number of years over which wages are averaged, and early reduction factors. Using data from 2020 to 2022 awards, the reduction in average new pension is estimated at 3.5% for 9% per annum early pension reduction factors, 4% reduction for the accrual rate schedule shown in Table 6.1, and a 1.8% reduction if wages are averaged over 7 years instead of 5 years. Different combinations of changes would produce different reductions in average new pensions hence the projections shown above for 5% and 8% reductions.

- Pensions starting one year later (Scenarios 4 and 5) is the estimated effect of changing the Age pension to a Retirement Pension.

As shown above, it is possible to extend the life of the Fund for almost 30 years through a combination of contribution rate increase to 15% and Age pension reforms which other countries have already adopted.

Chapter 7 Unemployment Benefit

While almost all industrialised countries have some form of unemployment insurance, Barbados, The Bahamas and more recently Grenada and the Turks & Caicos Islands, are the only Caribbean countries with a permanent unemployment benefit (UEB). This benefit provides partial income replacement to eligible covered workers for short periods following involuntary unemployment. Like other contributory social security benefits, unemployment benefits are paid as a matter of right with no demonstration of need required.

The Labour Force Surveys conducted in 2015 and 2017 estimated the unemployment rate at between 25% and 26%.

In 2020, both the Government and the NIS provided income support to workers who lost employment income due to temporary business closures due to COVID-19.

A detailed assessment of whether the introduction of an unemployment benefit is viable is beyond the scope of this review. However, a brief discussion of the purpose and design issues to be considered prior to implementing such a programme are presented below.

Unemployment insurance programmes have both primary and secondary objectives. The primary objectives involve assisting individual workers during periods of involuntary unemployment while the secondary objectives stress the promotion of economic efficiency and stability. Specifically, these objectives may be summarised as follows:

Table 7.1. Objectives of Unemployment Insurance Programmes

Primary Objectives	Secondary Objectives
(1) Provide cash payments during involuntary unemployment, (2) Maintain to a substantial degree the unemployed worker's standard of living, (3) Provide time to find employment consistent with their skills and experience, (4) Help unemployed workers find jobs.	(1) Stabilise economy during recessions by enabling unemployed workers to maintain their personal income & consumption, (2) Promote better utilisation of labour by encouraging unemployed workers to find appropriate jobs and, where necessary, helping them to improve their job skills, (3) Help employers maintain a skilled work force as skilled workers are not forced to seek other jobs, and thus are free to return when they are called back.

When designing an unemployment benefit, the following issues should be considered:

Table 7.2. Unemployment Benefits Design Considerations

Design Element	Typical Provision	Issues for Added Consideration
Who should be covered	▪ Employed persons - those most at risk of becoming involuntarily unemployed	▪ Should permanent civil servants be covered? (In Barbados they are not but in The Bahamas they are) ▪ Self-employed persons are more difficult to cover but could be included with some differences
Definition of unemployment	▪ Lost job through no fault of your own and are available for and able to work, but can't find a job	▪ Unemployed could also include "partial unemployment" – working for reduced hours/days/income (Included in Barbados but not in The Bahamas)
Eligibility Requirements	▪ Was employed in insurable employment ▪ Lost job through no fault of your own (a few exceptions may be allowed) ▪ Been without work and without pay for at least a certain # of days or weeks ▪ Worked and contributed to the NIS for the required # of weeks in one or more recent periods, or since the last UEB claim; ▪ Ready, willing and capable of working; and ▪ Actively looking for work	▪ Could add an element of job-specific online training
Benefit Replacement rate	▪ Will depend on initial design objectives (currently 60% in Barbados, 40% in The Bahamas)	▪ Start with a modest rate first (e.g., 40% or 50%) and increase as experience unfolds
Maximum benefit duration	▪ Will depend on initial design (currently 26 weeks in Barbados, 13 weeks in The Bahamas)	▪ Start with say 13 weeks and increase as experience unfolds
Verified continued eligibility	▪ Thorough checks required to verify ongoing eligibility status	▪ Verification could be conducted within the NIS or by a 3rd party
Efficient integration of UEB with labour law (Severance/Redundancy)	▪ Avoid duplication and/or anomalies between UEB and benefits payable by employer if made redundant	▪ Amendments to the Labour law may be required
Contribution Rate	▪ Rate required based on benefit rules and funding objectives	▪ Rate reviewed triennially as part of actuarial review
Sharing of Contributions between workers and employer	▪ 50%/50% employer/employee	

Design Element	Typical Provision	Issues for Added Consideration
Accounting for UEB	▪ Separate Fund (Barbados) or part of the STB Branch (The Bahamas)	▪ Could also be a new branch within the NIF
Funding objectives (adequacy of reserves)	▪ Build up enough reserves, even for times of "crisis" when a significant portion of workforce is unemployed for an extended period	▪ Addition of UEB should not compromise long-term sustainability of the NIF
Job-matching service (JMS)	▪ Place for employers to post available jobs and unemployed persons to register	▪ Registration with a JMS should be a prerequisite for claiming UEB. Claimant must sign a "Job Seeker Agreement." ▪ This service could also be used to confirm whether unemployed persons meet the conditions for ongoing eligibility

Rough estimates of the incidence of unemployment claims and the likely average duration suggest that a contribution rate of 0.75% to 1.25% of insurable earnings should be sufficient to meet expenditure for a scheme that replaces 50% of earnings for a maximum of 13 weeks. The following matrix shows the contribution rates required for various combinations of unemployment incidence rates and average benefit durations for a 50% benefit rate.

Table 7.3. Estimated UEB Costs For 50% Benefit Rate

Avg. Benefit Duration (weeks)	% of Eligible Insureds That Claim in A Year				
	3%	4%	5%	6%	7%
6	0.20%	0.27%	0.34%	0.41%	0.48%
8	0.27%	0.36%	0.45%	0.54%	0.63%
10	0.34%	0.45%	0.57%	0.68%	0.79%
12	0.41%	0.54%	0.68%	0.81%	0.95%
14	0.48%	0.63%	0.79%	0.95%	1.11%
16	0.54%	0.72%	0.90%	1.09%	1.27%

Chapter 8 Self-employed & Informal Sector Workers

The primary goal of the NIS is to provide income security to workers when they have a temporary or permanent loss of income. The most important benefit is the lifetime Age pension. For formal sector workers, where the employer submits a monthly remittance with payment on behalf of all workers, the NIS works well, and most are adequately covered. For informal sector workers, however, the NIS has only been able to consistently capture a small portion.

Low participation rates among informal sector workers are not uncommon in the Caribbean. The 2017 Labour Force Survey estimated the number of self-employed persons (SEPs) at 23% of the workforce or around 9,500 persons. While approximately 16% of SEPs make some contributions to the NIS each year, contributions from SEPs account for just under 2% of total contribution income.

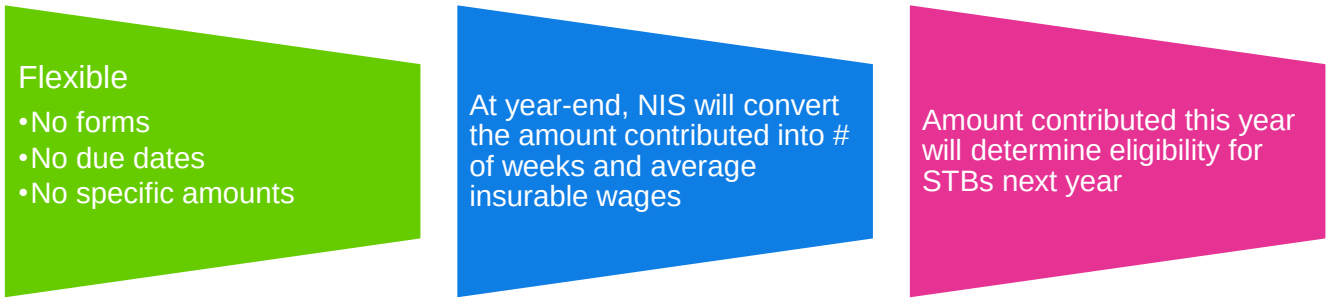
To avoid increasing levels of non-participation among self-employed and informal sector workers, adopting new approaches to reaching them is critical. An effective approach is likely to include:

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

Together with various government departments, the NIS should adopt new approaches using available technology to share current compliance status to improve self-employed participation.

Since SEPs do not often have a regular steady wage like employed persons do, it is also recommended that the NIS adopt the following approach to the way SEPs contribute.

Figure 8.1. A New Approach to Self-employed Contributions & Benefits



This recommended approach will allow the NIS to keep the current contribution approach that works well for employed persons.

The National Insurance Scheme (NIS) in Grenada implemented this new “flex” approach in July 2023 and the Barbados NIS is preparing to do likewise in 2024.

Statement of Actuarial Opinion

It is our opinion that for this report of the 12th Actuarial Review of the National Insurance Fund:

- the data on which the projections and analysis are based are sufficient and reliable;
- the assumptions used are, in 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.

TELUS Health

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Principal

December 22, 2023

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Appendix A Summary of Contribution & Benefit Provisions

A.1 Benefits, Insured Persons & Contribution Rates

The NIS provides for the following benefits:

a. ***Long-term benefits:*** Age Benefit and Grant, Invalidity Benefit and Grant, and Survivors' Benefit and Grant, Funeral Grant, Non-contributory Assistance Age Pension (NAAP), Elderly Assistance Benefit.

b. ***Short-term benefits:*** Sickness Benefit, Maternity Benefit & Grant.

c. ***Employment Injury (EI) Benefits:*** Injury Benefit, Disablement Benefit and Grant, Death Benefit, Medical Expenses, Funeral Grant.

Employed, self-employed and voluntary insured persons aged 16 to pensionable age are covered for the above contingencies as follows:

- Employed persons aged 16 to Pensionable Age: All contingencies for private sector employees; all contingencies other than Sickness benefit for government employees.
- Self-employed persons: All contingencies except Employment Injury benefits.
- Employed persons over Pensionable Age: Employment injury benefits only.
- Voluntary insured persons: Age, Invalidity and Survivors Benefits, and Funeral Grant.

Pensionable Age, which was 60 prior to 2016, is gradually increasing to 65 as follows:

- 2016 to 2018: 61
- 2019 to 2021: 62
- 2022 to 2024: 63
- 2025 to 2027: 64
- 2028 onwards: 65

Earnings used for determining contributions and benefits are limited to $1,000 per week or $4,333 per month. Earnings include basic salary and all other remuneration in cash or kind such as overtime, allowances, bonuses, service charges etc. The monthly ceiling on insurable wages has increased since 1987 as follows:

Jan. 1987 to Apr. 1995:	$1,668
May 1995 to Dec. 1999:	$2,600
Jan. 2000 to Dec. 2002:	$3,250
Jan. 2003 to Dec. 2005:	$3,770
Jan. 2006 to present:	$4,333

No contributions are due if wages are less than $15 per week or $60 per month.

Contributions are computed as a percentage of insurable earnings. Contribution rates for the four classes of contributors are as follows:

Classification	Employees	Employers	Total
Private	4.50%	5.50%	10.00%
Self Employed	-	-	9.50%
Government	4.29%	5.25%	9.54%
Voluntary	-	-	8.84%

The above rates came into effect January 2014 following a 2% adjustment for each category.

A.2 Summary of Benefits Provisions

A.2.1. LONG-TERM BENEFITS

(a) AGE BENEFIT – WEEKLY PENSION (OLD-AGE PENSION & EARLY AGE PENSION)

Contribution Requirement: Before 2016, 500 paid or credited weekly contributions. Since 2016, the number of paid or credited weekly contributions is increasing as follows:

- 2016 to 2018: 550
- 2019 to 2021: 600
- 2022 to 2024: 650
- 2025 to 2027: 700
- 2028 onwards: 750

Age Requirement: 60 for a reduced pension (starting 2016) and Pensionable Age for an unreduced pension. Pensionable age is increasing gradually from 63 in 2023 to 65 in 2028 as shown on previous page.

Amount of Benefit: 30% of average insurable earnings in the best five years over the insured's career, plus ½% for every 25 weeks paid or credited in excess of the minimum required number of weeks shown above.

Early pensions are reduced by ½% for each month the age at award is less than pensionable age.

Maximum Pension: 60% of average earnings over the best five years over one's career.

Minimum Pension: $70.00 per week.

(b) PARTIAL (REDUCED) AGE PENSION

Eligibility: Between 2016 and 2027, payable to an insured who has attained pensionable age and has at least 500 paid or credited weekly contributions.

Amount of Benefit: 30% of average insurable earnings in the best five years over the insured's career, reduced proportionately for contributions less than required contributions as per pensionable age.

(c) AGE BENEFIT – GRANT

Contribution Requirement: 50 or more but less than the minimum required paid or credited weekly contributions as per pensionable age for Age Pension.

Eligibility: Pensionable Age.

Amount of Benefit: six (6) times the average weekly insurable earnings in the last fifty (50) weekly paid contributions. This amount is paid as a lump sum.

(d) INVALIDITY PENSION

Contribution Requirement: 150 paid weekly contributions.

Eligibility: The applicant is:

(i) Less than pensionable age,

(ii) Medically declared an invalid.

Amount of Benefit: 30% of average insurable earnings over the best five years over the insured's career, plus ½% for every 25 weeks paid in excess of the required contributions for Age pension.

Minimum Pension: $70.00 per week.

Duration of Pension: Payable as long as invalidity continues until pensionable age. Invalidity Pension converted to an Age Pension when pensionable age reached.

(e) INVALIDITY GRANT

Contribution Requirement: Between 50 and 150 paid or credited weekly contributions.

Eligibility: Other than for the contribution requirement, the eligibility conditions are the same as for Invalidity Pension.

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

(f) SURVIVORS' PENSION

Contribution Requirement: The deceased, at time of death, was receiving or had paid enough contributions to qualify for an Invalidity or Age benefit.

Eligibility: Widow or widower married or in a common law relationship (living together for at least three years), child(ren) under 16, 21 if in full-time education or invalid and parents.

Amount of Benefit: The proportion of the Age or Invalidity pension paid or payable shown below:

- Widow or widower: 75%;
- Child: 25% (50% if orphan);
- Parents: 50%;

Minimum Child Pension: $17.50 per week.

Minimum Parent Pension: $35 per week

Duration of Benefit:

- Widow or widower: for life if over age 55 or has dependent children or invalid at time of death. For 1 year only if otherwise. Pension ceases upon remarriage.
- Child: Up to age 18 or 21 if in school or college; for life if invalid.

(g) SURVIVORS' GRANT

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

Eligibility: Other than for the contribution requirement of the deceased, the eligibility conditions are the same as a Survivors' Pension.

Amount of Benefit: Product of Age grant and respective percentage for survivors' pension benefit

(h) FUNERAL GRANT

Contribution Requirement: 26 contributions paid by deceased.

Eligibility: Deceased met contribution requirement, was in receipt of Old Age or Invalidity pension or the spouse or dependent child of such a person.

Amount of Grant: Maximum of $4,525; $2,263 for a spouse, $453 to $2,263 for children based on age.

(i) NAAP PENSION

Eligibility: No further additions are expected to this category of pensioner. Former requirements for eligibility were age 60 and not qualified for Old Age or Invalidity Pension

Amount of Benefit: $37.50 per week

(j) NAAP FUNERAL GRANT

Eligibility: Age 60 and not otherwise qualified for Funeral Grant453
Amount of Grant: Maximum of $2,263; $1,131 for a spouse, percentage for child based on age.

(k) ELDERLY ASSISTANCE BENEFIT

Eligibility: No further additions are expected to this category of pensioner.
Amount of Benefit: $37.50 per week

A.2.2. SHORT-TERM BENEFITS

(a) SICKNESS BENEFIT

Contribution Requirements: 26 paid contribution weeks with at least 8 weeks in the last 13. The insured must be under Pensionable age and be off from work.

Eligibility Requirements: 16 or older but less than Pensionable Age

Waiting Period: 3 days.

Amount of Benefit: 65 per cent of average weekly insurable earnings during the last 13 weeks prior to the illness.

Duration of Benefit: Maximum of 26 weeks.

(b) MATERNITY ALLOWANCE

Contribution Requirement: Insured for 30 weeks with at least 20 paid contributions in the last 30 weeks immediately preceding the week that is 6 weeks before the expected week of confinement, or the week from which benefit began, if later.

Amount of Benefit: 65% of average weekly insurable earnings during the last 30 weeks.

Duration of Benefit: Maximum of 13 weeks.

(c) MATERNITY GRANT

Contribution Requirement: Insured or spouse has at least 20 paid contributions in the last 30 weeks immediately preceding confinement.

Amount of Grant: $660 per child.

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 an illness as a result of employment.

Amount of Benefit: 70% of average insurable earnings in the last 13 weeks before the accident or disease occurred (or shorter period if applicable.)

Duration of Benefit: Maximum of 26 weeks.

Waiting Period: 3 days.

(b) DISABLEMENT BENEFIT

Eligibility: Loss of at least 30% of any physical or mental faculty as a result of a job-related accident or disease.

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

Duration of Benefit: For life or until disability ceases

(c) DISABLEMENT GRANT

Eligibility: Same as Disablement Pension but loss of faculty is less than 30%.

Amount of Benefit: The product of (i), (ii) and (iii) where:

(i) 70% of average weekly insured earnings

(ii) Degree of disablement

(iii)Factor of 365

(d) CONSTANT ATTENDANCE ALLOWANCE

Payable to an injured person whose disablement is 100% and who requires the constant help of another person but is not institutionalised.

Amount of Allowance: 50% of the Disablement Pension

Duration of Allowance: Up to 260 weeks following the date of the disablement.

(e) DEATH BENEFIT

Eligibility: Dependants are defined as for survivors' benefit in Long Term Benefits.
Amount of Benefit: Same as the Survivors' pension under the long-term benefits branch but calculated with reference to the deceased worker's primary employment injury benefit.

Amount of Benefit: The proportion of the Age/Invalidity pension paid or payable shown below:

Widow or widower: 50%;
Child: 16.7% (33% if invalid);
Other dependants: 16.7%;

(f) MEDICAL EXPENSES

Amount: Injured insured is reimbursed for 80% of reasonable expenses occurred as a result of an employment injury.

(g) FUNERAL GRANTS

Eligibility: Paid upon death of the worker as a result of an employment injury.

Amount: $4,525

A.2.4 Social Security Agreements

St. Vincent & The Grenadines is a signatory to the CARICOM Agreement on Social Security. By totalising contributions made in all CARICOM countries, persons who have insufficient contributions to qualify for a pension in one or more states, may receive pensions from all systems if the total number of contributions made exceeds the number required in that state. The pension payable would be the proportion that contributions made in that state bear to the total contributions made times the pension that would have been payable for the total number of contributions made. The Agreement covers Old-age, Invalidity, Survivors and Disablement benefits only. In 2022, 63 pensions were being paid under this agreement.

St. Vincent & The Grenadines is also signatory to a Social Security Agreement with Canada. In 2022, 4 pensions were being paid under this agreement.

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 modeling tools to fit the specific case of SVG and the National Insurance Fund. These modeling tools include a population model, an economic model, a labour force model, a wage model, a long-term benefits model and a short-term benefits model.

The actuarial valuation begins with a projection of SVG's future demographic and economic environment. Next, projection factors specifically related to the NIS 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 SVG population has been projected beginning with totals obtained from the results of the 2012 national census and by applying appropriate mortality, fertility, and migration assumptions.

For the Best Estimate scenario, the total fertility rate is assumed to stay at 1.6 throughout the projection period. Table B.1 shows ultimate age-specific and total fertility rates for each assumption set.

Table B.1. Fertility Rates

Age Group	Fertility Rates	Ultimate Fertility Rates		
		Optimistic	Best Estimate	Pessimistic
15 - 19	0.021	0.024	0.021	0.019
20 - 24	0.055	0.062	0.055	0.050
25 - 29	0.086	0.097	0.086	0.078
30 - 34	0.079	0.089	0.079	0.072
35 - 39	0.068	0.077	0.068	0.062
40 - 44	0.014	0.016	0.014	0.013
45 - 49	-	-	-	-
Total Fertility Rate	1.60	1.80	1.60	1.45

Mortality rates have been determined using United Nations life tables for Latin America with the appropriate table selected based on closely matching the actual number of deaths in SVG since the last census. Improvements in life expectancy have been assumed to follow the Society of Actuaries Scale AA. Sample mortality rates for the Best Estimate scenario and the life expectancies at birth and at age 65 for sample years are provided in Table B.2.

Table B.2. Sample Mortality Rates & Life Expectancies

Age	Males			Females		
	2022	2052	2082	2022	2052	2082
0	0.0170	0.0129	0.0099	0.0142	0.0090	0.0057
5	0.0014	0.0013	0.0012	0.0015	0.0013	0.0011
15	0.0008	0.0007	0.0007	0.0006	0.0005	0.0005
25	0.0017	0.0014	0.0012	0.0012	0.0008	0.0005
35	0.0024	0.0022	0.0020	0.0020	0.0014	0.0010
45	0.0047	0.0037	0.0029	0.0037	0.0023	0.0014
55	0.0108	0.0076	0.0054	0.0076	0.0060	0.0047
65	0.0248	0.0193	0.0150	0.0193	0.0166	0.0143
75	0.0579	0.0450	0.0349	0.0475	0.0373	0.0293
85	0.1323	0.1166	0.1028	0.1174	0.0980	0.0818
95	0.2765	0.2668	0.2573	0.2410	0.2269	0.2137
Life Expectancy at:						
Birth	69.6	72.6	75.4	72.2	75.5	78.2
Age 65	14.7	16.3	17.8	16.1	17.5	18.8
Life Expectancy at Age 65 for Alternate Scenarios:						
Pessimistic	14.7	16.7	18.6	16.1	17.8	19.6
Optimistic	14.7	15.8	16.9	16.1	17.0	18.0

For the Best Estimate scenario, net in-migration is assumed to reduce from 675 per year in 2022 to 500 per year in 2065, remaining constant thereafter.

Table B.3. Net Migration

Age	2022	2035			2050+		
		Opt.	Best Est.	Pess.	Opt.	Best Est.	Pess.
0 - 9	(49)	(20)	(33)	(46)	(5)	(8)	(11)
10 - 19	(47)	(19)	(32)	(44)	(5)	(8)	(11)
20 - 29	(282)	(113)	(188)	(263)	(28)	(47)	(66)
30 - 39	(160)	(64)	(107)	(150)	(16)	(27)	(37)
40 - 49	(46)	(19)	(31)	(43)	(5)	(8)	(11)
50 - 59	(12)	(5)	(8)	(11)	(1)	(2)	(3)
60 - 69	(3)	(1)	(2)	(3)	(0)	(0)	(1)
70+	(1)	(0)	(0)	(0)	(0)	(0)	(0)
All Ages	(600)	(240)	(400)	(560)	(60)	(100)	(140)

The projection of the labour force is obtained by applying assumed labour force participation rates to the projected number of persons in the total population. Labour force participation rates for both males and females are assumed to increase by 3% and 5%, respectively, over 30 years, remaining constant thereafter. Table B.4 below shows the assumed age-specific labour force participation rates in 2022, 2027 and 2052.

Table B.4. Age-Specific Labour Force Participation Rates

Age	Males			Females		
	2022	2037	2052	2022	2037	2052
17	42%	43%	43%	40%	41%	42%
22	63%	64%	65%	60%	62%	63%
27	91%	92%	93%	83%	85%	87%
32	93%	94%	95%	84%	86%	88%
37	93%	94%	95%	85%	87%	88%
42	93%	94%	95%	87%	89%	90%
47	93%	94%	95%	87%	89%	90%
52	93%	94%	95%	87%	89%	90%
57	84%	86%	87%	67%	71%	74%
62	59%	61%	62%	42%	45%	48%
67	31%	33%	34%	11%	13%	16%

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 to the assumed increase in labour productivity as it is expected that wages will almost adjust to efficiency levels over time. The inflation assumption affects nominal average wage increases. Actual assumptions for each scenario are found in Table 4.1.

B.2 Projection of National Insurance Fund Income & Expenditure

This actuarial review addresses all National Insurance Fund revenue and expenditure items. For Short-term benefits, income and expenditure are projected as a percentage of insurable wages. Projections of pensions are performed following a year-by-year cohort methodology. For each year up to 2097, 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 wages, the average 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 NIS experience and applied to the population entitled to benefits. The yield on reserves is assumed to remain constant throughout the projection period. NIS administrative expenses are modelled as a percentage of insurable earnings.

B.3 NIS & Population Data & Assumptions

The data required for the valuation of the National Insurance Fund is extensive. As of December 31st, 2022, 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.

NIS 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 NISs 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 NIS specific input data and the key assumptions used in this report are provided in tables B.5 through B.9.

Table B.5. 2022 Active Insured Population, Earnings & Past Credits

Age	# of Active Insureds		Average Monthly Insurable Earnings		Average # of Years of Past Contributions	
	Male	Female	Male	Female	Male	Female
15 - 19	454	481	$261	$241	0.4	0.3
20 - 24	2,449	2,641	$319	$291	1.8	1.6
25 - 29	2,748	3,037	$405	$389	4.1	3.8
30 - 34	2,460	2,817	$501	$487	7.0	6.6
35 - 39	2,323	2,834	$550	$529	10.1	10.0
40 - 44	2,177	2,707	$548	$525	11.9	12.5
45 - 49	2,048	2,404	$556	$483	13.7	14.5
50 - 54	2,020	2,038	$557	$481	16.2	17.6
55 - 59	1,862	1,981	$541	$437	17.7	18.5
60 - 64	1,062	908	$505	$348	17.7	17.5
65+	624	429	$494	$376	16.6	15.1
All Ages	20,227	22,277	$485	$447	10.8	10.9

Table B.6. Pensions in Payment - December 2022

Age	Old-Age Benefit		Invalidity Benefit		Survivors Benefits		NAAP & EAB	
	Male	Female	Male	Female	Male	Female	Male	Female
0 - 4	-	-	-	-	7	9	-	-
5 - 9	-	-	-	-	37	40	-	-
10 - 14	-	-	-	-	98	95	-	-
15 - 19	-	-	-	-	110	109	-	-
20 - 24	-	-	-	-	6	15	-	-
25 - 29	-	-	-	-	3	5	-	-
30 - 34	-	-	2	-	2	11	-	-
35 - 39	-	-	1	1	11	20	-	-
40 - 44	-	-	4	3	10	34	-	-
45 - 49	-	-	4	6	10	35	-	-
50 - 54	-	-	17	7	12	32	-	-
55 - 59	-	-	32	25	31	80	-	-
60 - 64	1,019	910	34	27	30	121	-	-
65 - 69	1,198	1,144	-	-	29	119	1	-
70 - 74	674	652	-	-	18	125	2	4
75 - 79	362	327	-	-	22	93	10	12
80 - 84	204	170	-	-	16	69	51	47
85 - 89	80	104	-	-	12	29	16	23
90 - 94	12	20	-	-	5	17	31	96
95 - 99	-	-	-	-	1	3	11	22
# of Pensioners	3,549	3,327	94	69	470	1,061	122	204
Avg Weekly Pension	$205.28	$176.23	$144.97	$135.07	$65.17	$94.49	$37.50	$37.50

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

Table B.7. Density of Contributions

Age	Males	Females
17	30%	30%
22	56%	57%
27	68%	68%
32	71%	73%
37	73%	76%
42	72%	77%
47	72%	76%
52	72%	78%
57	72%	76%
62	67%	69%

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	0.127	-
32	0.142	-
37	0.142	-
42	0.482	0.129
47	1.196	0.728
52	1.559	1.374
57	3.759	3.887
62	5.959	6.400

Table B.9 shows the assumed probability of Survivor benefit claims and the average ages of new claimants, grouped 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	-	-	-	-
22	0.10	0.0	-	0.1
27	0.07	0.1	-	0.3
32	0.33	0.5	0.11	0.7
37	0.30	0.9	0.20	1.4
42	0.34	1.4	0.16	1.3
47	0.40	1.3	0.12	1.2
52	0.37	0.8	0.10	0.9
57	0.42	0.5	0.13	0.2
62	0.40	0.6	0.13	0.1
67	0.34	0.2	0.09	-
72	0.14	0.2	0.06	-
77	0.11	0.2	0.04	-
82	0.11	0.1	0.02	-
87	0.08	0.0	0.01	-

Appendix C Projection Results – 3 Scenarios

Table C.1. Projected SVG Population

Year	All Ages	0-15		16-64		65+		Age Depend. Ratio
2022	109,095	25,006	22.9%	72,664	66.6%	11,425	10.5%	0.16
				Best Estimate				
2032	106,031	20,134	19.0%	70,073	66.1%	15,824	14.9%	0.23
2042	102,780	18,465	18.0%	65,759	64.0%	18,556	18.1%	0.28
2052	98,882	16,854	17.0%	62,177	62.9%	19,850	20.1%	0.32
2062	93,982	14,944	15.9%	57,967	61.7%	21,071	22.4%	0.36
2072	88,582	13,586	15.3%	52,707	59.5%	22,289	25.2%	0.42
2082	82,489	12,455	15.1%	46,853	56.8%	23,181	28.1%	0.49
2092	75,784	11,140	14.7%	43,024	56.8%	21,621	28.5%	0.50
				Pessimistic				
2032	102,996	18,701	18.2%	68,405	66.4%	15,890	15.4%	0.23
2042	97,316	15,864	16.3%	62,634	64.4%	18,819	19.3%	0.30
2052	91,834	14,267	15.5%	57,293	62.4%	20,274	22.1%	0.35
2062	85,388	12,126	14.2%	51,933	60.8%	21,329	25.0%	0.41
2072	78,385	10,382	13.2%	45,898	58.6%	22,105	28.2%	0.48
2082	70,906	9,194	13.0%	38,671	54.5%	23,042	32.5%	0.60
2092	62,878	7,846	12.5%	33,636	53.5%	21,396	34.0%	0.64
				Optimistic				
2032	109,468	21,970	20.1%	71,740	65.5%	15,759	14.4%	0.22
2042	109,104	21,821	20.0%	68,994	63.2%	18,288	16.8%	0.27
2052	107,285	20,274	18.9%	67,604	63.0%	19,407	18.1%	0.29
2062	104,629	18,897	18.1%	64,979	62.1%	20,752	19.8%	0.32
2072	101,647	18,259	18.0%	61,078	60.1%	22,310	21.9%	0.37
2082	97,789	17,343	17.7%	57,409	58.7%	23,037	23.6%	0.40
2092	93,423	16,284	17.4%	55,517	59.4%	21,622	23.1%	0.39

Figure C.1. Projected SVG Population

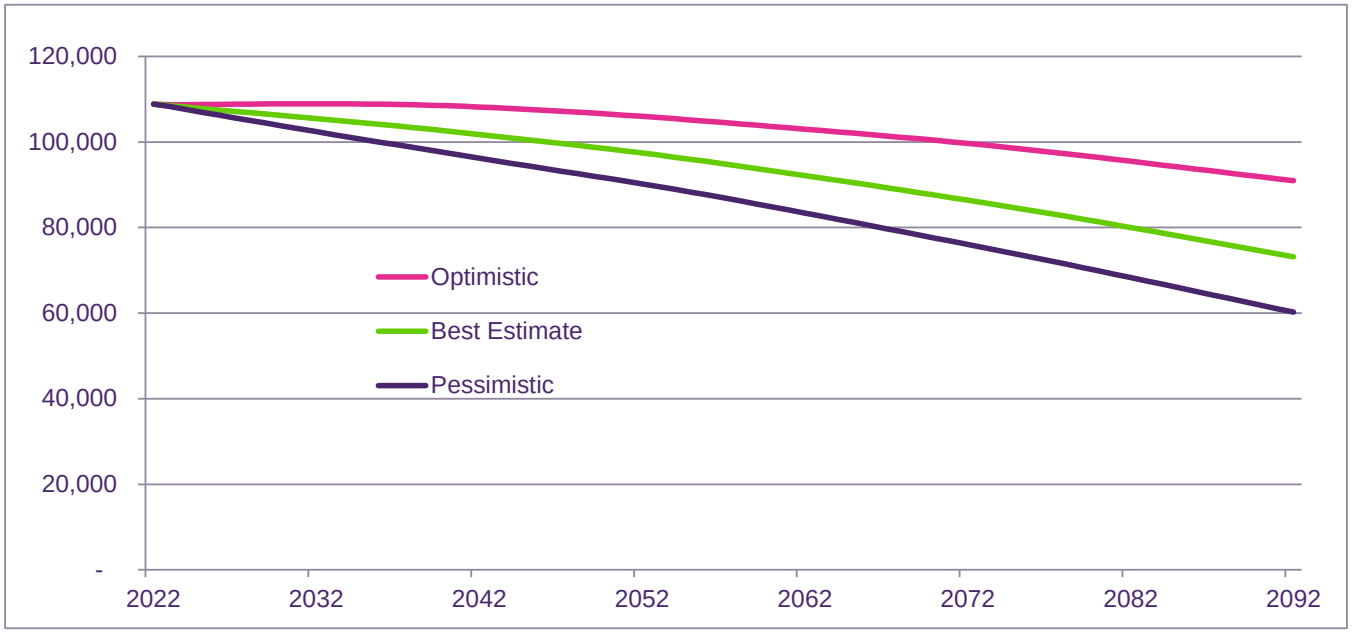

Table C.2. Projected Cash Flows & Reserves, Pessimistic Scenario (millions of $'s)

Year	Cash Inflows				Cash Outflows					Reserves	
	Contribution Income	Investment Income	Other Income	Total	Benefits	Admin. Expenses	Other Expenses	Total	Surplus/ (Deficit)	End of Year	# of times current year's expenditure
2020	67.1	28.6	2.1	**97.8**	77.1	12.0	0.0	**89.1**	**8.7**	**497**	5.6
2021	68.2	20.2	0.3	**88.7**	82.2	11.3	(2.3)	**91.1**	**(2.4)**	**495**	5.3
2022	73.4	(2.8)	0.3	**71.0**	85.5	11.3	2.0	**98.8**	**(27.8)**	**467**	4.8
2023	75.0	13.6	0.0	**88.6**	90.2	10.7	-	**100.9**	**(12.3)**	**455**	4.5
2024	76.1	13.1	0.0	**89.2**	99.8	11.1	-	**110.9**	**(21.7)**	**433**	3.9
2025	78.4	12.4	0.0	**90.8**	105.2	11.4	-	**116.6**	**(25.8)**	**407**	3.5
2026	82.6	11.6	0.0	**94.2**	111.3	12.0	-	**123.3**	**(29.0)**	**378**	3.1
2027	84.9	10.6	0.0	**95.5**	119.4	12.2	-	**131.6**	**(36.1)**	**342**	2.6
2028	87.3	9.5	0.0	**96.8**	125.0	12.5	-	**137.5**	**(40.7)**	**301**	2.2
2029	89.3	8.3	0.0	**97.6**	129.6	12.7	-	**142.3**	**(44.7)**	**257**	1.8
2030	91.5	6.8	0.0	**98.3**	135.7	13.0	-	**148.7**	**(50.4)**	**206**	1.4
2031	93.7	5.3	0.0	**99.0**	142.3	13.2	-	**155.5**	**(56.5)**	**150**	1.0
2032	96.0	3.5	0.0	**99.5**	148.9	13.5	-	**162.4**	**(62.9)**	**87**	0.5
2037	106.7	0.0	0.0	**106.7**	181.8	14.6	-	**196.4**	**(89.7)**	**-329**	(1.7)
2042	115.9	0.0	0.0	**115.9**	216.6	15.4	-	**232.0**	**(116.1)**	**-947**	(4.1)
2052	136.1	0.0	0.0	**136.1**	297.3	18.0	-	**315.3**	**(179.2)**	**-3,001**	(9.5)
2062	158.6	0.0	0.0	**158.6**	409.5	20.9	-	**430.5**	**(271.9)**	**-6,632**	(15.4)
2072	181.6	0.0	0.0	**181.6**	532.1	24.0	-	**556.1**	**(374.5)**	**-12,699**	(22.8)
2082	196.4	0.0	0.0	**196.4**	685.2	25.9	-	**711.1**	**(514.7)**	**-22,281**	(31.3)
2092	217.2	0.0	0.0	**217.2**	790.3	28.7	-	**819.0**	**(601.8)**	**-36,503**	(44.6)

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

Year	Long-term Pensions & Grants					Short-term Benefits	Emp. Injury Benefits	NPF	Benefits as a % of:	
	Age	Invalidity	Survivors	NAAP & EAB	All Grants				Insurable Wages	GDP
2020	58.2	1.1	5.4	0.9	3.4	6.2	0.3	1.5	11.3%	3.3%
2021	63.4	1.0	6.2	0.8	4.0	4.8	0.3	1.7	11.9%	3.5%
2022	67.8	1.1	6.8	0.7	3.0	4.3	0.3	1.7	11.5%	3.3%
2023	72.6	1.4	6.9	0.5	3.3	3.7	0.3	1.5	12.0%	3.3%
2024	80.8	1.5	7.8	0.4	3.4	3.9	0.3	1.5	12.7%	3.5%
2025	85.5	1.5	8.6	0.3	3.5	4.1	0.4	1.3	13.0%	3.5%
2026	90.6	1.6	9.4	0.2	3.6	4.3	0.4	1.0	13.0%	3.5%
2027	97.9	1.6	10.2	0.2	3.7	4.5	0.4	0.8	13.6%	3.6%
2028	102.7	1.7	10.9	0.2	3.8	4.7	0.5	0.5	13.8%	3.7%
2029	106.6	1.8	11.7	0.1	3.8	4.8	0.5	0.3	14.0%	3.7%
2030	112.0	1.9	12.4	0.1	3.9	5.0	0.5	-	14.3%	3.8%
2031	117.6	2.0	13.1	0.1	3.9	5.1	0.5	-	14.7%	3.8%
2032	123.2	2.1	13.8	0.1	3.9	5.3	0.6	-	15.0%	3.9%
2037	150.8	2.5	17.5	0.0	4.1	6.2	0.7	-	16.5%	4.2%
2042	180.4	3.0	21.2	0.0	4.2	7.0	0.9	-	18.0%	4.6%
2052	252.0	3.9	27.7	-	4.2	8.3	1.1	-	21.1%	5.2%
2062	355.3	5.0	34.1	-	4.1	9.7	1.4	-	24.9%	5.8%
2072	468.7	6.4	40.6	-	3.8	11.1	1.6	-	28.3%	6.4%
2082	615.4	6.4	46.5	-	3.1	12.0	1.8	-	33.7%	6.9%
2092	715.2	7.4	50.2	-	2.3	13.2	2.0	-	35.1%	6.7%

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

Year	# of Contributors	# of Pensioners					Total # of Pensioners	Ratio of Contributors to Pensioners
		Age	Invalidity	Survivors	Death & Disablement	NAAP & EAB		
2020	43,459	6,308	194	1,347	34	459	**8,342**	**5.2**
2021	41,521	6,745	180	1,507	35	396	**8,863**	**4.7**
2022	42,504	6,880	163	1,531	32	338	**8,944**	**4.8**
2023	42,151	7,169	184	1,502	37	231	**9,124**	**4.6**
2024	43,277	7,475	189	1,599	39	182	**9,484**	**4.6**
2025	43,761	7,689	188	1,702	40	143	**9,762**	**4.5**
2026	43,883	7,946	191	1,801	42	112	**10,092**	**4.3**
2027	44,034	8,346	196	1,892	43	88	**10,565**	**4.2**
2028	44,280	8,550	201	1,964	45	68	**10,827**	**4.1**
2029	44,247	8,672	206	2,016	46	52	**10,992**	**4.0**
2030	44,244	8,890	212	2,050	47	40	**11,239**	**3.9**
2031	44,266	9,100	216	2,075	47	31	**11,469**	**3.9**
2032	44,309	9,302	220	2,096	48	24	**11,690**	**3.8**
2037	43,819	10,179	238	2,220	52	5	**12,694**	**3.5**
2042	42,434	11,046	244	2,295	53	1	**13,639**	**3.1**
2052	39,867	12,737	256	2,283	54	-	**15,331**	**2.6**
2062	37,648	14,763	260	2,189	53	-	**17,265**	**2.2**
2072	34,736	15,778	262	2,032	52	-	**18,124**	**1.9**
2082	29,310	16,732	214	1,830	44	-	**18,819**	**1.6**
2092	25,428	15,692	193	1,563	39	-	**17,488**	**1.5**

# of pensioners in 2020 to 2022 are those with at least one payment during the year

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

Year	Cash Inflows				Cash Outflows					Reserves	
	Contribution Income	Investment Income	Other Income	Total	Benefits	Admin. Expenses	Other Expenses	Total	Surplus/ (Deficit)	End of Year	# of times current year's expenditure
2020	67.1	28.6	2.1	**97.8**	77.1	12.0	0.0	**89.1**	**8.7**	**497**	5.6
2021	68.2	20.2	0.3	**88.7**	82.2	11.3	(2.3)	**91.1**	**(2.4)**	**495**	5.3
2022	73.4	(2.8)	0.3	**71.0**	85.5	11.3	2.0	**98.8**	**(27.8)**	**467**	4.8
2023	78.0	22.7	0.0	**100.7**	90.8	11.5	-	**102.3**	**(1.6)**	**465**	4.5
2024	84.1	22.6	0.0	**106.7**	100.6	12.3	-	**112.9**	**(6.2)**	**459**	4.1
2025	88.8	22.2	0.0	**111.0**	105.3	12.9	-	**118.3**	**(7.3)**	**452**	3.8
2026	96.2	21.9	0.0	**118.1**	111.0	13.9	-	**124.9**	**(6.8)**	**445**	3.6
2027	100.8	21.5	0.0	**122.3**	118.7	14.5	-	**133.2**	**(10.9)**	**434**	3.3
2028	105.7	20.9	0.0	**126.6**	123.8	15.2	-	**139.0**	**(12.3)**	**422**	3.0
2029	109.9	20.3	0.0	**130.1**	128.0	15.7	-	**143.7**	**(13.6)**	**408**	2.8
2030	114.2	19.5	0.0	**133.7**	134.1	16.2	-	**150.3**	**(16.6)**	**392**	2.6
2031	118.8	18.6	0.0	**137.4**	140.7	16.8	-	**157.4**	**(20.0)**	**372**	2.4
2032	123.5	17.6	0.0	**141.1**	147.5	17.3	-	**164.8**	**(23.7)**	**348**	2.1
2037	147.2	9.2	0.0	**156.4**	183.0	20.1	-	**203.1**	**(46.7)**	**165**	0.8
2042	168.9	0.0	0.0	**168.9**	222.6	22.4	-	**245.0**	**(76.1)**	**-168**	(0.7)
2052	212.7	0.0	0.0	**212.7**	320.9	28.1	-	**349.0**	**(136.3)**	**-1,621**	(4.6)
2062	258.1	0.0	0.0	**258.1**	475.2	34.1	-	**509.3**	**(251.2)**	**-5,059**	(9.9)
2072	309.9	0.0	0.0	**309.9**	656.5	40.9	-	**697.4**	**(387.5)**	**-12,393**	(17.8)
2082	371.0	0.0	0.0	**371.0**	846.5	49.0	-	**895.5**	**(524.5)**	**-26,142**	(29.2)
2092	448.4	0.0	0.0	**448.4**	1,018.4	59.2	-	**1,077.6**	**(629.3)**	**-49,941**	(46.3)

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

Year	Long-term Pensions & Grants					Short-term Benefits	Emp. Injury Benefits	NPF	Benefits as a % of:	
	Age	Invalidity	Survivors	NAAP & EAB	All Grants				Insurable Wages	GDP
2020	58.2	1.1	5.4	0.9	3.4	6.2	0.3	1.5	11.3%	3.3%
2021	63.4	1.0	6.2	0.8	4.0	4.8	0.3	1.7	11.9%	3.5%
2022	67.8	1.1	6.8	0.7	3.0	4.3	0.3	1.7	11.5%	3.3%
2023	72.6	1.4	6.9	0.5	3.6	4.0	0.3	1.5	11.6%	3.3%
2024	80.8	1.5	7.8	0.4	3.8	4.3	0.4	1.5	12.0%	3.4%
2025	84.7	1.5	8.5	0.3	4.0	4.6	0.4	1.3	11.9%	3.4%
2026	89.1	1.6	9.2	0.2	4.2	5.0	0.4	1.0	11.6%	3.4%
2027	95.8	1.6	10.0	0.2	4.4	5.3	0.5	0.8	11.8%	3.4%
2028	100.0	1.7	10.7	0.2	4.6	5.6	0.5	0.5	11.8%	3.5%
2029	103.3	1.8	11.3	0.1	4.7	5.9	0.5	0.3	11.7%	3.4%
2030	108.5	1.9	12.0	0.1	4.8	6.2	0.6	-	11.8%	3.5%
2031	113.8	2.0	12.7	0.1	4.9	6.5	0.6	-	11.9%	3.5%
2032	119.4	2.1	13.3	0.1	5.1	6.8	0.7	-	12.0%	3.5%
2037	148.3	2.8	16.8	0.0	5.7	8.5	0.9	-	12.5%	3.7%
2042	181.2	3.4	20.5	0.0	6.1	10.2	1.1	-	13.2%	3.9%
2052	266.3	5.0	28.5	-	6.6	13.0	1.5	-	15.2%	4.1%
2062	406.3	6.7	37.8	-	6.7	15.7	1.9	-	18.5%	4.6%
2072	571.8	8.2	48.8	-	6.4	18.9	2.4	-	21.3%	4.8%
2082	746.3	9.2	59.7	-	5.8	22.6	2.8	-	22.9%	4.7%
2092	901.4	12.3	69.2	-	4.8	27.3	3.5	-	22.8%	4.3%

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

Year	# of Contributors	# of Pensioners					Total # of Pensioners	Ratio of Contributors to Pensioners
		Age	Invalidity	Survivors	Death & Disablement	NAAP & EAB		
2020	43,459	6,308	194	1,347	34	459	**8,342**	**5.2**
2021	41,521	6,745	180	1,507	35	396	**8,863**	**4.7**
2022	42,504	6,880	163	1,531	32	338	**8,944**	**4.8**
2023	42,618	7,169	184	1,502	37	231	**9,123**	**4.7**
2024	44,244	7,474	189	1,599	39	182	**9,483**	**4.7**
2025	45,229	7,687	188	1,702	40	143	**9,760**	**4.6**
2026	45,863	7,943	191	1,802	42	112	**10,090**	**4.5**
2027	46,531	8,341	196	1,894	43	88	**10,564**	**4.4**
2028	47,292	8,545	201	1,969	45	68	**10,829**	**4.4**
2029	47,773	8,669	207	2,025	46	52	**10,999**	**4.3**
2030	48,286	8,891	214	2,061	47	40	**11,253**	**4.3**
2031	48,827	9,107	219	2,088	48	31	**11,493**	**4.2**
2032	49,389	9,317	224	2,112	49	24	**11,726**	**4.2**
2037	51,437	10,280	251	2,245	53	5	**12,833**	**4.0**
2042	52,371	11,226	267	2,360	56	1	**13,910**	**3.8**
2052	52,667	13,211	303	2,487	61	-	**16,063**	**3.3**
2062	50,126	16,304	316	2,514	63	-	**19,196**	**2.6**
2072	47,150	18,544	299	2,507	61	-	**21,412**	**2.2**
2082	44,460	19,322	266	2,422	57	-	**22,067**	**2.0**
2092	42,647	18,572	278	2,219	56	-	**21,124**	**2.0**

# of pensioners in 2020 to 2022 are those with at least one payment during the year

Appendix D Income, Expenditure & Reserves, 2020 – 2022

		2020	2021	2022
Income				
	Contribution Income (net)	67.125	68.237	73.444
	Investment Income	28.575	20.182	(2.777)
	Other Income	2.128	0.328	0.286
Total Income		**97.827**	**88.748**	**70.953**
Expenditure				
Benefits				
	Sickness Benefit	2.282	2.785	2.799
	Maternity Benefit	1.246	1.153	1.171
	Maternity Grant	0.331	0.310	0.299
	Temporary Unemployment Benefit	2.358	0.596	-
	Funeral Grant	2.089	2.326	2.255
	Invalidity Benefit	1.056	1.038	1.142
	Survivors Benefit	5.426	6.172	6.756
	Age Benefit	58.210	63.423	67.780
	Age Grant	1.356	1.694	0.727
	Non-Contributory Assistance Pension	0.636	0.484	0.423
	Elderly Asst Benefit	0.286	0.270	0.232
	Employment Injury Medical	0.010	0.004	0.003
	Employment Injury	0.140	0.112	0.108
	Employment Disablement	0.093	0.096	0.091
	Employment Death	0.060	0.056	0.056
	National Provident Fund	1.544	1.663	1.698
Total Benefit Expenditure		77.122	82.179	85.541
Administrative Expenditure		11.982	11.263	11.260
Other Expenses		-	(2.335)	1.997
Total Expenditure		**89.103**	**91.108**	**98.797**
Excess of Income over Expenditure		**8.724**	**(2.360)**	**(27.843)**
Reserves at End of Year		**497.202**	**494.842**	**466.998**
Short-term Benefits Reserves		30.970	32.397	33.632
Long-term Benefits Reserves		347.869	336.426	311.602
Employment Injury Benefits Reserves		82.685	89.648	94.284
National Provident Fund		34.596	33.129	31.582
Fair Value Reserve		1.082	3.241	(4.101)

Appendix E Benefit Branch Experience & Analysis

E.1 Benefit Branches

NIS administers three major types of social security benefits – long-term benefits or pensions, short-term benefits and employment injury benefits. Since the three benefit types have different characteristics and financing mechanisms, the separation allows for better monitoring of experience.

For the Short-term benefit (STB) and Employment Injury benefit (EIB) branches, a pay-as-you-go method of financing is used. Under this method current contributions are expected to closely match current benefits with only a small reserve. Therefore, the contribution allocation to these branches should approximate expected expenditure and reserve levels should be small, relative to annual expenditure. Long-term benefits are partially pre-funded with the portion of the contribution rate not allocated to Short-term and Employment Injury benefits.

As shown in Table E.1., while contributions allocated to the Short-term benefits branch were only slightly less than actual expenditure (as a percentage of insurable wages), actual expenditure was well below allocations for the Employment Injury benefits branch but well above the allocation to the Long-term benefits branch.

Table E.1. Summary Branch Experience (% of Insurable Earnings)

Benefit Branch	Contribution $'s Allocated	Contribution Rate Allocated	Average Expenditure 2020 – 2022	End of Year Reserves	Reserve-Expenditure Ratio
Short-term	8.25%	0.82%	0.85%	$33.6	6.5
Long-term	85.45%	8.55%	12.00%	$311.6	3.4
Employment Injury	6.30%	0.63%	0.10%	$94.3	128.5
All Branches	100.0%	10.00%	12.93%	$439.5	4.8

Note: Reserve-Expenditure ratio is the size of the year-end reserve relative to total expenditure in that year.

At the end of 2022 actual funding ratios for the STB and EIB branches were well in excess of target funding ratios of 1 and 2, respectively. The overfunded positions of the Short-term and Employment Injury branches are a result of expenditure being consistently less than the percentage of contribution income allocated. Therefore, reallocations of contribution income and the transfer of reserves from both branches to the Long-term benefits branch could be made.

The recommended changes to the allocation of contribution and transfer of reserves between branches are shown in table E.2.

Table E.2. Recommended Changes to Contribution Allocation & Reserve Transfers

Benefit Branch	Contribution Income Allocation		Reserve Transfer
	Current	Recommended	
Short-term	8.25%	8.25%	$25 million to LTB Branch
Employment Injury	6.3%	1.00%	$90 million to LTB Branch
Long-term	85.45%	90.75%	$115 million from STB & EIB Branches
All	**100.0%**	**100.0%**	

It should be noted that changes in the allocation of contribution and investment income, and transfer of reserves between branches, have no impact on the overall present or future funded position of the National Insurance Fund. These adjustments are for internal accounting purposes only and are consistent with the manner in which the NIS has elected to finance and account for the various types of benefits.

E.2 National Provident Fund Reserves

The National Provident Fund (NPF) reserve represents accumulated NPF balances less members' settled claims. Each year, investment income is added and NPF payments are deducted.

At the end of 2022 National Provident Fund (NPF) reserves totaled $31.6 million down from $35.9 million at the end of 2019. NPF payments during 2020 to 2022 averaged $1.6 million per annum.

NPF payments are likely to end around 2030. The present value of projected future NPF payments has been estimated at $6 to $7 million. This suggests that there are surplus reserves in the NPF branch. While this potential surplus may appear available for additional benefits to former NPF contributors or pensions to elderly residents who are not now receiving a pension from NIS, this is not the case. Since NPF reserves were combined with NIF reserves many years ago all monies in the NIF, regardless of the branch they fall under, can be used the pay all NIS benefits. NPF payouts and reserves are included in the projections presented in this report.

E.3 Long-term Benefit Experience, 2020 – 2022

Table E.3. LTB Branch Expenditure as % of Insurable Wages, 2020-2022

Pension Type	2020	2021	2022
Funeral Benefit	0.31%	0.34%	0.30%
Invalidity Benefit	0.16%	0.15%	0.15%
Survivors Benefit	0.80%	0.89%	0.91%
Age Benefit	8.56%	9.16%	9.09%
Age Grant	0.20%	0.24%	0.10%
Invalidity Grant	0.00%	0.00%	0.00%
NAAP	0.09%	0.07%	0.06%
Elderly Assistance Benefit	0.04%	0.04%	0.03%
All Benefits & Grants	**10.15%**	**10.88%**	**10.64%**
Administrative Expenses	1.56%	1.46%	1.36%
Bad Debt Expense	0.00%	-0.29%	0.23%
Total Branch Expenditure	**11.71%**	**12.06%**	**12.23%**

Note: Age Benefit includes Early Age pension and Partial Age pension.

Table E.4. Pensions in Payment, Awarded & Terminated, 2020- 2022

Pension Type	Paid in Dec. 2019	Awarded 2020- 2022	Terminated 2020-2022	Paid in Dec. 2022	Average Weekly Pension December 2019	Average Weekly Pension December 2022
Age	5,977	2,584	(1,748)	6,813	$185	$191
Invalidity	157	104	(98)	163	$136	$151
Survivors	1,374	377	(220)	1,531	$82	$88

E.4. Short-term Benefit Experience, 2020 – 2022

Table E.5. STB Branch Expenditure as % of Insurable Wages, 2020-2022

Pension Type	2020	2021	2022
Sickness Benefit	0.34%	0.40%	0.38%
Maternity Allowance	0.18%	0.17%	0.16%
Maternity Grant	0.05%	0.04%	0.04%
Temporary Unemployment	0.35%	0.09%	0.00%
All Benefits & Grants	**0.91%**	**0.70%**	**0.57%**
Administrative Expenses	0.15%	0.11%	0.10%
Bad Debt Expense	0.00%	-0.03%	0.02%
Total Branch Expenditure	**1.06%**	**0.79%**	**0.69%**

Table E.6. Sickness Benefit Experience, 2020 – 2022

Year Ended	# Claims Awarded per 1,000 Insureds	Average benefit Duration (days)	Average Weekly Benefit
2020	168	6.3	$295
2021	170	6.5	$363
2022	221	5.7	$312

Table E.7. Maternity Allowance Experience, 2020 – 2022

Year Ended	# Claims Awarded per 1,000 Insureds	Average Allowance Duration (days)	Average Weekly Allowance
2020	8.2	73.9	$283
2021	8.4	67.9	$293
2022	8.0	73.7	$281

Table E.8. Maternity Grant & Funeral Grant Experience, 2020 – 2022

Year Ended	# Births	# Grants Awarded	Cost as a % of Ins. Wages	# Deaths	# Grants Awarded	Cost as a % of Ins. Wages
2020	1,320	479	0.05%	1,046	479	0.31%
2021	1,370	473	0.04%	1,184	518	0.34%
2022	Not Available	451	0.04%	Not Available	524	0.30%

E.5. Injury Benefit Experience, 2020 – 2022

Table E.9. EIB Branch Expenditure as % of Insurable Wages, 2020-2022

Pension Type	2020	2021	2022
Emp Injury Medical	0.001%	0.001%	0.000%
Emp Injury	0.021%	0.016%	0.014%
Emp Disablement	0.014%	0.014%	0.012%
Emp Death	0.009%	0.008%	0.008%
Disablement Grant	0.000%	0.000%	0.000%
Total Benefits & Grants	**0.045%**	**0.039%**	**0.035%**
Administrative Expenses	0.056%	0.050%	0.047%
Bad Debt Expense	0.000%	-0.021%	0.017%
Total Branch Expenditure	**0.10%**	**0.07%**	**0.10%**

Table E.10. Employment Injury Benefit Experience, 2020- 2022

Year Ended	# Claims Awarded per 1,000 Insureds	Average Benefit Duration (days)	Average Weekly Benefit
2020	6.9	10.0	$277
2021	4.9	9.0	$368
2022	4.4	9.4	$366

Table E.11. Medical & Disablement Grant Experience, 2020-2022

Year Ended	# Medical Claims Awarded	# Disablement Grants Awarded
2020	39	1
2021	17	-
2022	16	-

Table E.12. Disablement & Death Benefits, Awards & Pensions in Payment, 2020- 2022

	Disablement Pensions		Death Benefit	
Year Ended	# Pensions Awarded	Pensions In Payment (December)	# Pensions Awarded	Pensions In Payment (December)
2020	-	16	3	18
2021	1	16	-	19
2022	1	15	3	17