MORNEAU SHEPELL

10th & 11th Actuarial Reviews of the Antigua-Barbuda Social Security Fund as of December 31, 2014

Final Report

September 4, 2015

Business. Needs. People.

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Abbreviations and Acronyms

ABSS	Antigua-Barbuda Social Security
GDP	Gross Domestic Product
GOAB	Government of Antigua-Barbuda
ILO	International Labour Office
IMF	International Monetary Fund
ISSA	International Social Security Association
IW	Insurable Wages
LTB	Long-term Benefits
OECS	Organisation of Eastern Caribbean States
PAYG	Pay-as-you-go
SS	Social Security
SSF	Social Security Fund
SSB	Social Security Board
STB	Short-term Benefits
TFR	Total Fertility Rate

Introduction

Antigua-Barbuda Social Security began operations in April 1973. All employed and self-employed persons are covered for two main types of social security benefits – short-term benefits and long-term benefits or pensions. Employment injury benefits are currently not offered. The system is financed by contributions which are levied on employment earnings up to an earnings ceiling and are paid by employers, employees and self-employed persons. Surplus funds are invested locally in various types of securities and properties.

This is the report of the 10th and 11th Actuarial Reviews of the Social Security Fund and is being prepared as of December 31, 2014. The 9th Actuarial Review was conducted as of December 31, 2009. The 10th Actuarial Review as of December 2012 and 11th Actuarial Review as of December 2014 have been combined into this single report so that triennial reviews required under Section 18 of The Social Security Act can be made current. This report is being prepared for the Board.

The main purpose of periodic actuarial reviews is to determine if the social security system in Antigua-Barbuda 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 actuarial review, 50-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 Social Security Act, periodic actuarial reviews should be conducted. The next Actuarial Review of the Social Security Fund is due as at December 31, 2017.

Derek Osborne, Actuary, visited Antigua-Barbuda in April 2015 and held discussions with the Minister responsible for Social Security, members of the Board, the Director and Social Security Managers and staff. During a return visit in August 2015 he met with the Board and Cabinet. He wishes to thank Mr. David Matthias, Director, and Ms. Debra Joseph, Research and Communications Manager, and all other members of the Social Security Board staff who assisted with this review.

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

September 4th, 2015

Executive Summary

Social Security systems make promises to former and current workers that extend beyond 60 years. It is therefore important that these systems are well designed, well governed and properly administered. Periodic actuarial reviews of the Social Security Fund provide a comprehensive assessment of the current and projected state of Antigua-Barbuda's social security system. They also provide policy recommendations for changes designed to ensure that a suitable balance between benefit adequacy and financial sustainability is achieved for both current and future periods. This is the report of the 10th and 11th Actuarial Reviews of the Social Security Fund and has been conducted as at December 31st 2014. It covers the 5-year period 2010 to 2014.

The Antigua-Barbuda Social Security Fund continues to operate in a pay-as-you-go state with no liquid assets and regular contributions insufficient to meet expenditure. The Fund now depends on ad hoc contributions from Government to help meet its current benefit payments, payroll and other administrative costs. For a third consecutive year, weekly benefit and monthly pension payments are being made late. From a financing perspective, the Fund is in crisis and immediate corrective action is required.

During the 5-year review period, 2010 to 2014, the Antigua-Barbuda economy grew at a modest rate after 3 years of negative growth. For Social Security, the number of contributors declined while the number of pensioners increased. In response to increasing deficits, the Social Security contribution rate and wage ceiling were increased in May 2013. No reforms to the pension age, as recommended in previous actuarial reviews, were made. And while the Government of Antigua-Barbuda met its monthly contribution obligations to the Fund, exchanges of Government-owned property or other assets to the Fund anticipated under the 2010 Memorandum of Understanding did not occur. At the end of 2014, reserves totalled $635 million - $525 million due from the Government of Antigua-Barbuda, $41.8 million due from other entities and $38.3 million is held in various properties.

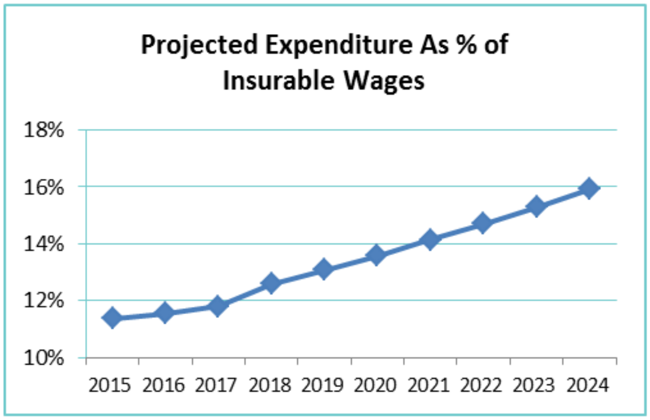
Other non-financial challenges facing the Fund include:

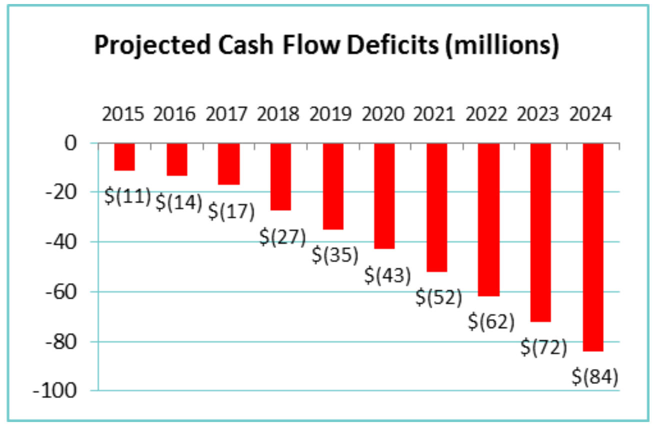
- The latest finalised audited financial statements are as of December 2009, and
- Financial statements and actuarial review reports have not been consistently tabled in Parliament for many years.

Main Findings & Projection Results

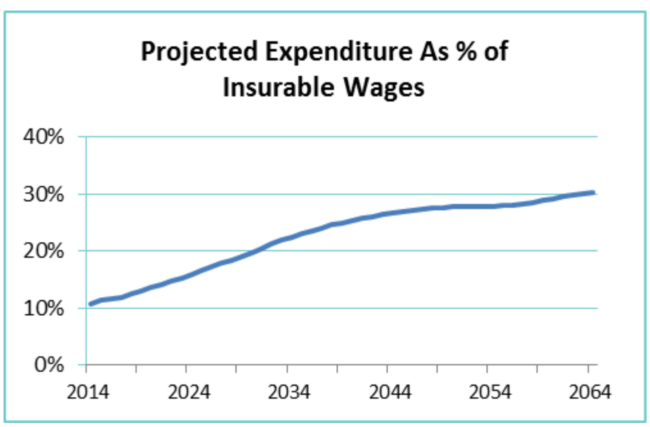
This report's assessment of policy and design indicators suggests that current contribution and benefit provisions provide a reasonably good level of benefit adequacy and income protection to most workers and pensioners. The sole exception is Survivors benefit which still has different eligibility requirements for widows and widowers. The wage ceiling currently covers the wages of approximately 95% of workers and thus provides full income protection to most. Although pensions have not been increased since 2005, the relatively low inflation rates since then have resulted in only moderate deterioration in the purchasing power of pensions. Investments now held by the Fund are illiquid and thus not suitable for the current needs of the Fund. Administrative costs are at a reasonable level.

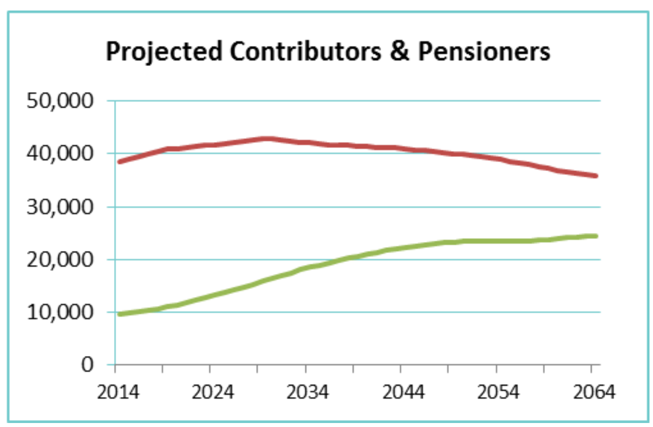
The Fund's most pressing need is the generation of enough current income to meet current expenditure. The following charts illustrate projected costs, as a percentage of insurable wages, (left chart) and projected annual operating deficits (right chart) for the next 10 years if the contribution rate and benefit rules remain unchanged.





Policymakers should also focus on long-term costs, which under current pension rules, are expected to increase significantly as shown below (left chart) over the next 60 years. The pay-as-you-go rate in 2064 is projected to be around 30%. Most of this increase will be driven by the increase in the number of pensioners and gradual reduction in the number of contributors. (Right chart)





Additional projections show that a combination of contribution rate increases, conversion of property and government debt to cash and increases to the normal pension age can together reduce long-term costs and lower ultimate contribution rates to under 25%.

A sustainable national pension system is one that over the long term, delivers on its financial promises in such a way that the financial burden is borne equitably by participants. These results indicate that the Social Security Fund is not financially sustainable, especially given the uncertainty of being able to convert assets into cash for the payment of benefits. Immediate attention to both short-term financing and long-term cost reductions is needed.

Recommendations

Many recommendations are made throughout this report. These are summarised below. These recommendations are in keeping with the primary objectives of Social Security, which are, to consistently deliver on its promises and maintain a suitable balance between long-term sustainability and benefit adequacy. Even though recommendations are split into two categories, all are considered essential to a turnaround in outlook for the Fund.

High Priority

1. Increase the contribution rate by at least 1% effective January 2016. A 2% increase will provide additional income and allow for the regular on-time payment of benefits.
2. Adopt a policy for future contribution rate increases that clearly states when and by how much rates will be adjusted over the next 10 years.
3. Establish a new MOU with Government which ensures a reliable stream of cash over and above regular contributions due for its employees.
4. Increase normal pensionable age from 60 to 65 by one year every two years starting January 2016, keeping age 60 available for payment of a reduced pension, and only awarding the pension if the claimant is substantially retired.
5. Eliminate Reduced Age Pensions.
6. Revise the formula for average insurable wages used for calculating Age pensions so that higher paid persons do not continue to receive windfall gains as a result of the recent ceiling increase.
7. Ensure that each real estate property that is not being used by the Social Security Board generates income for the Fund by either being sold or leased at market rates.
8. Table in Parliament all actuarial and financial reports that have not yet been laid.
9. Prepare good governance policies & guidelines for the Social Security Board.

Medium Priority

10. Enhance links with government departments and agencies so that only businesses that are SS-compliant are issued government licenses, permits and contracts.
11. Enhance enforcement and/or introduce increased penalties for non-compliance.
12. Revise the rules for Survivors pension to widowers to those that apply for widows.

13. Create more flexible options for self-employed persons to contribute.
14. Make greater use of available technology or upgrade administrative systems where necessary.
15. Adopt a no tolerance approach to incomplete employer contribution submissions, including Government.

No pension increases are recommended in this report given the additional burden that such an increase would place on the Fund.

Reforms to the Act & Regulations have been recommended and discussed internally for many years but only those that resulted in immediate cash flow increases were made in 2013. Pension reforms which take several years to realize material savings should not be postponed any longer. The Government and Board should seek to enact the reforms to contribution and benefit rules listed above no later than January 2016.

The ability of any social security system to remain meaningful to insured persons, yet affordable to future generations is dependent on continued existence of the following four key ingredients:

- A healthy and growing economy,
- A well designed system,
- Effective and efficient administration, and
- Good governance.

Policymakers have limited control over future economic patterns, but a growing economy in which employment and wages are increasing will contribute positively to Social Security's short-term finances and long-term sustainability. Good governance practices that see Government, the Board and senior management each accountable and transparent in their actions should also positively influence a turnaround in the financial state of the Fund. Such actions will result in necessary reforms being made soon and full public disclosure that will help enhance stakeholder confidence.

Future contribution rate increases to over 20% are inevitable. The failure of Government to meet its obligations for over 30 years and delaying pension reforms and repayment of amounts owed, has placed the Fund in a dire financial position. Requiring future generations of taxpayers and Social Security contributors to pay more than twice the current contribution rate may not be sustainable. Reforms can no longer be delayed. Bringing Social Security out of crisis and back to a prudent method of financing both short and long-term obligations will require tough decisions by policymakers. Whether Government fully meets its obligations through increasing taxes or defaults on its obligations and Social Security is forced to increase its contribution rate, the burden of meeting future Social Security obligations will ultimately be borne by current and future generations of workers and employers.

Chapter 1 Experience Since 9th Actuarial Review

1.1 Amendments To Act & Regulations

The 9th Actuarial Review of the Social Security Fund was conducted as of December 31st, 2009. In 2013, several amendments were made to Regulations. Following is a summary of the changes with significant financial implications.

a) The contribution rate was increased from 8.0% to 10.0% for private sector employees and self-employed persons, and from 7.0% to 9.0% for public sector workers. (May 2013)

b) The ceiling on insurable wages was increased from $4,500 to $6,500 per month. (May 2013)

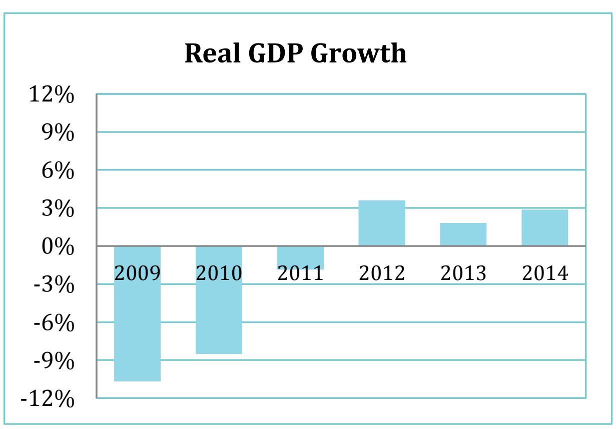
c) Transitory Age pensions were repealed. (January 2014)

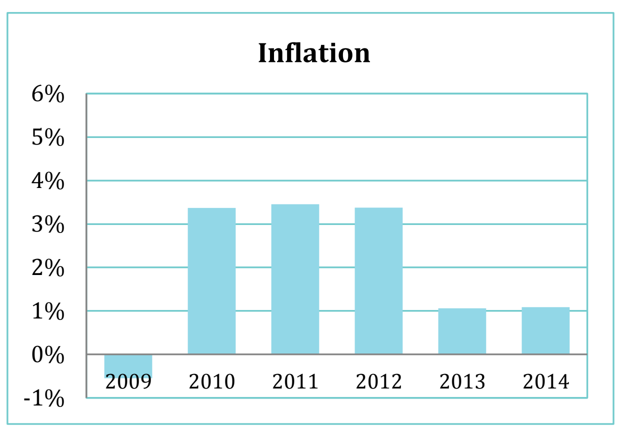
The Social Security Board and Government are commended for these three changes that increased cash income to the Fund. However, the additional revenue generated when combined with investment income, was still insufficient to cover total expenditure.

1.2 Economic Experience

Contribution income is closely linked to economic performance and labour market changes. Some benefits are also affected by economic changes. As shown in the charts in Figure 1.1, the Antigua-Barbuda economy contracted in 2010 and 2011 but expanded in 2012 to 2014. During the two actuarial review periods covered by this report (2010 to 2014) the economy contracted at an average rate of 2.3% per annum. Inflation during this period averaged 2.5% per annum.

Figure 1.1. Key Economic Indicators, 2009 to 2013

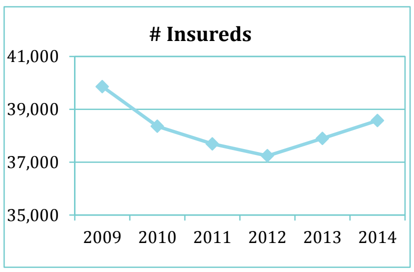


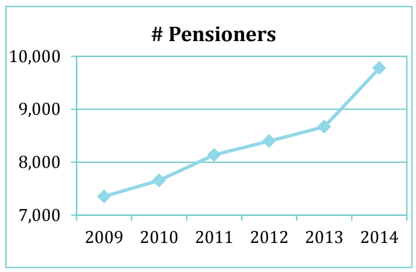


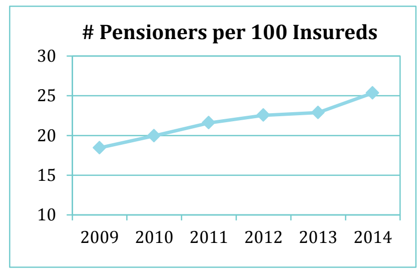
1.3 Social Security Fund Experience

In line with changes in economic activity, the number of contributors declined during 2010 to 2012 and then increased slightly in 2013 and 2014 but did not return to 2009 levels. (Figure 1.2 below). As expected, the number of pensions in payment increased each year. The key result from fewer contributors and continuous increase in the number of pensioners is an increase in the demographic ratio (number of pensioners per 100 insured persons) from 18.4 to 25.3 between 2009 and 2014.

Figure 1.2. Contributors & Pensioners, 2008 to 2014

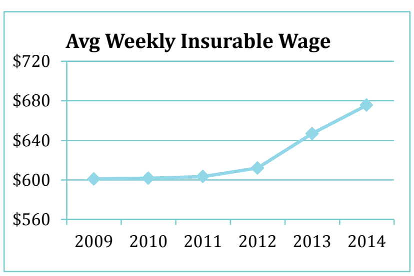


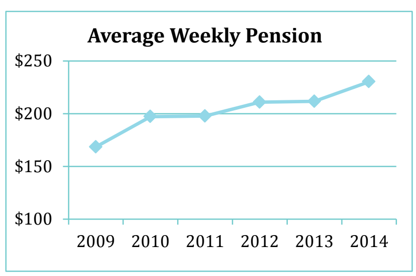


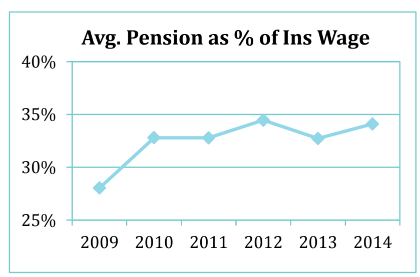


Both the average insurable wage and the average pension in payment increased between 2010 and 2014. (Figure 1.3 below). Average insurable wages increased significantly in 2013 and 2014 following the May 2013 increase in the wage ceiling. There were no general pension increases during the review period. Average pensions divided by average insurable earnings is often referred to as the replacement ratio. This ratio increased from 28.0% to 34.1% between 2009 and 2014 indicating that average pensions increased at a faster rate than average insurable earnings.

Figure 1.3. Average Insurance Wages & Pensions in Payment, 2008 to 2014







The following table provides summary income and expenditure amounts for 2010 to 2014. A more detailed version of the Social Security Fund finances for these years may be found in Appendix C.

Table 1.1. Summary of SSF Finances, 2010 – 2014 (millions of $'s)

	2010	2011	2012	2013	2014
Income					
Contributions	83.1	80.5	86.5	90.7	99.4
Investment	26.0	7.8	6.4	7.9	8.4
Other	-	-	-	-	0.4
Total	109.2	88.3	92.9	98.6	108.1
Expenditure					
Benefits	78.3	84.7	90.5	98.1	105.5
Administrative	11.7	10.9	11.7	12.0	10.6
Other (Includes Bad Debt)	1.8	-0.0	2.0	1.0	0.0
Total	91.9	95.7	104.2	111.1	116.1
Excess of Income over Expenditure	17.3	(7.4)	(11.3)	(12.5)	(8.0)

Notes: The above details are taken from draft audited financial statements up to 2013 and un-audited statements (created on a cash basis) for 2014. Totals may be off due to rounding.

Key highlights of income and expenditure are:

- Contribution income increased following the contribution rate and ceiling adjustment in 2013.
- Investment income remained low given that most assets are not generating returns.
- Benefit expenditure increased each year.
- Administrative costs varied with the least amount spent in the 5-year period being in 2014.
- Despite the increase in contribution income since 2012, benefits continued to exceed contributions and the Fund continued to experience deficits.

1.4 Benefit Branch Experience & Reserves

ABSS administers two major types of social security benefits – long-term or pensions and short-term benefits. While the summary of SS finances presented in the previous section shows total income and expenditure, internal accounting procedures separate finances into three branches. Since the two benefit types have different characteristics and financing mechanisms, the separation allows for better monitoring of experience. Each benefit is allocated to one of the two branches and each benefit branch is allocated a certain percentage of contribution income, investment income and administrative costs.

While the two benefit types have different characteristics and implicit financing mechanisms, the existence of branches does not affect the overall financing or sustainability of the overall Fund.

1.5 Experience Compared With Projections Of 9th Actuarial Review

Shown below is a comparison of actual cumulative experience over the 5-year period with the projections of the baseline scenario of the 9th Actuarial Review.

Table 1.2. Projections from 9th Actuarial Review Compared With Actual Experience

	2010-2014 Projected (millions of $'s)	2010-2014 Actual (millions of $'s)	% Difference
Contribution Income	$394.8	$440.2	11% above projected
Investment Income	$45.7	$56.5	24% above projected
Benefit Expenditure	$441.0	$457.2	4% above projected
Administrative Expenditure	$60.3	$61.7	2% above projected

As shown above, contribution and investment income were significantly higher than projected, while administrative and benefit expenditure were slightly above projected.

1.6 Memorandum of Understanding (MOU)

In 2010 a Memorandum of Understanding (MOU) between the Government of Antigua-Barbuda (GOAB) and the SSB to resolve all liabilities owed was signed. This MOU covered Government's indebtedness to the SSF as of December 2009 as follows:

Table 1.3. GOAB Indebtedness to SS as of Dec. 2009 Covered by MOU (millions of $'s)

	Outstanding Principal	Arrears & Other Liabilities	Total Outstanding
Contributions	$254.4	$31.4	$285.8
Loans & Rents	$31.2	$123.5	$154.7
Bonds	$26.2	$38.9	$65.1
Treasury Bills	$17.9	$26.0	$43.9
Total	$329.7	$219.8	$549.5

Under the MOU, repayment terms are:

a) $330 million payable in twenty semi-annual amounts starting January 2031 with semi-annual interest payments from 2010 to 2041 at interest rates increasing from 1% in 2010 to 6% after July 2021.

b) Swapping government owned real estate or other assets with the SSF, the terms of which were to have been documented in a separate MOU. This separate MOU has not yet been agreed.

To date, interest payments under the MOU have been irregular but payments from GOAB above the agreed amount for contribution income have been applied to the MOU. This has resulted in a reduction in the face amount of the bond element of the MOU. To date, no real assets have been swapped. As of December 2014, the amount due to the Fund under the MOU was $524.7 million.

1.7 Reserves & Investments

The following table summarises the SSF balance sheets as of December 2014 and December 2009. As shown, total reserves (amounts available to meet obligations) have decreased from $686 million to $635 million.

Table 1.4. Summary SSF Balance Sheet, December 31, 2014 & 2009 (millions of $'s)

	2014	2009
Investments (non-government)	80.1	84.6
Government MOU	524.7	549.5
Other Receivables & Assets	38.1	51.6
Total Assets	**642.9**	**685.7**
Reserves	635.2	684.8
Other Liabilities	7.7	0.9
Total Liabilities & Capital	**642.9**	**685.7**

Note: The Government MOU was signed in 2010. $109 million of investments in December 2009 were with the GOAB and these have been included in the 2009 amount shown for the MOU. 2014 amounts taken from unaudited statements.

The following table provides a summary of the investment mix of the Social Security Fund at year-ends 2009 and 2014.

Table 1.5. Summary of Investments, Year-end 2014 & 2009 ($'s in millions)

Investment Category	2014		2009	
	$'s	%	$'s	%
Fixed Deposits	9.4	11.7%	35.1	41.5%
Bonds & T-Bills	1.5	1.9%	3.2	3.8%
Loans	20.2	25.2%	-	0.0%
Properties	38.3	47.8%	32.5	38.4%
Equities	10.7	13.4%	13.8	16.3%
Total	**80.1**	**100%**	**84.6**	**100%**

Note: 2014 amounts taken from unaudited statements.

As shown above the value of investments in 2014 was 63% lower than in 2009. This reduction was due primarily to amounts held in fixed deposits being used to pay benefits and the conversion of outstanding GOAB debts into the MOU. (See Table 1.4 above) It is expected that the value of some investments will be further written down once the audits of financial statements for 2010 to 2014 are completed.

During the review period, the average yield on reserves was 1.1%. With inflation averaging 2.5% per annum, the real rate of return on reserves over the 5-year period was negative 1.4%.

At the time of this report none of the above investments could be readily converted to cash.

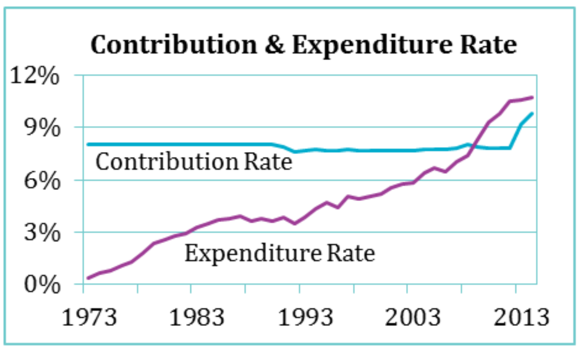
Chapter 2 Performance & Design Assessment

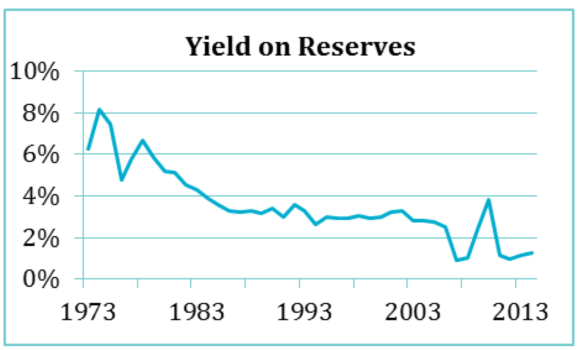
Social security systems must balance benefit adequacy with affordability and long-term sustainability. There is an obvious trade-off between these concepts:- higher benefits provide larger incomes to beneficiaries, but cost more while inadequate pensions result in pressures to increase benefits or add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

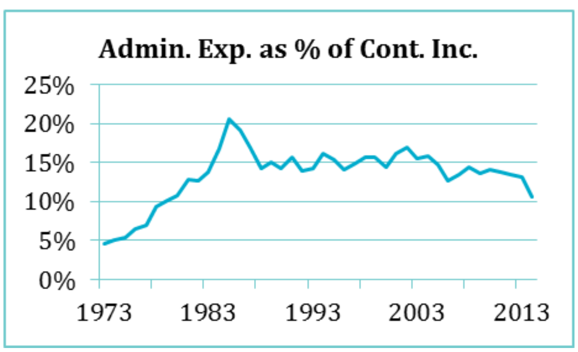
2.1 Historical Performance, 1973 – 2014

Experience for key financial factors from 1973 to 2014 is presented in the following charts:

Figure 2.1. Social Security Board Financial Experience







As the ABSS matures, expenditure relative to insurable wages has increased. The steep increases during the economic downturn are due to little or no growth in insurable wages but continued increases in expenditure. Each year since 2009, expenditure has exceeded contribution income. The contribution rate was increased by 2% in 2013.

As the portion of Fund reserves being carried as receivables increased over time the actual yield on reserves decreased, falling to less than 2% in all but one year since 2007. Under the partial funding financing system of financing it is expected that market rates of return on investments would contribute substantially to financing benefits. This has not been the case.

After 25 years of administrative costs being relatively stable at around 15% of contribution income, only 10.6% of contributions were spent on operating costs in 2014. This is an ideal expense ratio. This significant reduction is due to the increase in contribution rate and wage ceiling in May 2013, and lower actual costs.

Following are values for several key indicators as of the dates of the 9th, 10th and 11th Actuarial Reviews along with a brief analysis of the changes that have occurred.

Table 2.1. Social Security Performance Indicators

	2009	2012	2014	Comments
1. Contribution Rate (private)	8.0%	8.0%	10%	Increased May 2013
2. Expenditure Rate	7.4%	10.5%	10.7%	Large increase between 2009 and 2012 due to economy and smaller increase between 2012 and 2014 due to ceiling increase
3. Benefits as % of GDP	2.2%	2.8%	3.1%	Lower economic growth between 2009 and 2012 resulted in larger increase than expected
4. Reserve-Expenditure Ratio	8.2	6.6	5.5	Faster decrease than expected.
5. 3-year average nominal yield on reserves	1.4%	2.0%	1.1%	Extremely low returns
6. 3-year average real yield on reserves (net of inflation)	-0.7%	-1.4%	-0.7%	Negative real returns over last 8 years
7. Administrative Expenses (3-yr average) as:				Reductions in last two years in all useful measures of operating costs.
• % of Contributions	13.5%	13.8%	12.5%	
• % of Conts. + Benefits	7.6%	6.9%	6.0%	
• % of Insurable Wages	1.1%	1.2%	1.1%	
8. # of Contributors Per Pensioner	5.4	4.4	3.9	Faster decrease than expected due to reduction in # of contributors
9. Avg. Pension as % of Avg. Insurable Wage	28.0%	34.5%	34.1%	Significant increase that has been tempered by 2013 ceiling increase

These indicators are generally consistent with expectations of a maturing social security fund and economic conditions between 2009 and 2014. The one positive result is the reduction in operating expense ratios.

2.2 Meeting Policy Objectives

The rules and the amounts at which key parameters are set, determine benefit adequacy. How well certain rules are enforced, and how well the system is managed, also impact how well policy objectives are met. To determine how well these objectives are 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 benefits, this analysis focuses primarily on pensions which accounted for 92% of SSF benefit expenditure in 2014.

2.2.1 Coverage

With SS participation mandatory for all employed and self-employed persons, coverage concerns relate to actual participation rates by formal and informal sector workers, and the proportion of elderly residents receiving a SS pension. The following three estimates for 2014 provide a fairly good analysis of current coverage levels:

• % of workers (employed & self-employed) contributing to SS	85% - 90%
• % of contributors that have their wages fully covered by SS	95%
• % of the elderly resident population who receive a SS pension	80%

The first two indicators above show that most workers in Antigua-Barbuda made at least one contribution during the year and that all but 3% earn less than $6,500 per month. This level of coverage is very good and current wage ceiling is at an adequate level.

With over 80% of the elderly resident population receiving a pension from SS, the objective of providing a reliable source of income in old age is being met.

2.2.2 Adequacy

Benefit adequacy relates to the ability of benefits, especially pensions, to provide a decent standard of living when employment income is disrupted. Benefit adequacy can be broken down into two components:

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

Current Adequacy

The minimum contributory pension is currently $350 per month and has been fixed at this level since 2005. In 2014, $350 per month was approximately 12% of the average insurable wage. This is considered slightly low.

For pensioners receiving more than the minimum, their pension replacement rates are initially between 30% and 50% of their final average insurable wage, lower for the small percentage of very highly paid persons. This replacement level is considered adequate. As discussed in Section 5.2.2, pensions awarded to higher income workers who contributed at the new $6,500 ceiling for only a short period may be considered excessive.

The fact that widows and widowers have different qualifying conditions for Survivors benefit leaves many widowers without any financial support from the SSF.

Future Adequacy

A worker who has steady earnings below the wage ceiling and contributes to SS for a full career, sustaining him/herself predominantly from his employment earnings, can expect a pension of close to 50% of pre-retirement earnings. By ILO and other international standards this is adequate and thus meets any reasonable test of benefit adequacy for a social security pension. The challenge quite often, especially for the self-employed, is that many workers do not have steady wages and do not consistently work and contribute for 35 or 40 years.

The ceiling is now at a level where around 95% of workers are fully covered. Given that neither wage ceiling nor pension adjustments are automatic there is some uncertainty re future benefit adequacy. While no ceiling adjustment for an extended period will have little effect on the ultimate pension replacement rate of higher income workers, not increasing pensions periodically will result in a gradual decline in the purchasing power of these pensions.

Social security 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 benefits do not provide full income protection for all contingencies that could lead to involuntary loss of employment income. The benefits not currently provided are for employment injury and involuntary unemployment.

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 or not employers and workers in the future will be able to afford the cost. A definition of financial sustainability that has become widely used in social security discussions is whether the pension system is able to meet the needs of current generations without compromising the needs to future generations.

By design, the SSF is partially funded. However, with no liquid assets and the uncertainty of being able to convert existing assets to cash, the Fund currently operates on a pay-as-you-go basis. The current pay-as-you-go approach is less than ideal given that current contribution rates produce less income than needed to cover expenditure, resulting in the Government being required to transfer additional sums each month. This approach is not sustainable.

Based on regional comparisons the ABSS provides the least generous benefits package for a moderate contribution rate. While there is currently little room for benefit enhancements there is room for reforms that will reduce the long-term cost of Age pensions. However, even with pension reforms, the natural maturing of the ABSS will see expenditure rates more than double in the next fifty years.

It is not possible to determine today the highest contribution rate that workers and employers will be able to afford, or willing to pay, twenty to thirty years from now and so determining whether the ABSS Fund is sustainable or not depends heavily on the proportion of existing reserves ($635 million) that will actually be available to meet benefit expenditure.

Administrative Efficiency

Administrative efficiency relates to keeping operating and management costs low while delivering quality service. In recent years the amount spent on operating costs has fluctuated between $10.6 and $12.0 million. When compared to contribution income and total insurable wages, ABSS now has one of the lowest expense ratios in the OECS – 10.6% of contribution income and 1.0% of insurable wages in 2014. With the spending constraints that cash flow challenges have placed on management, the Board should ensure that these low-cost levels are sustainable without any long-term effect on data quality, customer service and the overall skillset of employees.

Regarding effectiveness of its operation, there remain challenges with existing systems and processes and the lack of complete contribution remittances which ultimately lead to lengthy claims processing times. This is especially the case with Government. Improved skills in the area of financial reporting are expected to result in the timely preparation of reliable financial statements.

Both cost savings and improved performance could be achieved if greater use were made of available technology as well as being firm in ensuring that only complete and accurate contribution submissions and claim forms are accepted.

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

2.3 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 ABSS with other social security schemes in the OECS in several key areas.

Table 2.2. ABSS Compared With Other SS & NIS Systems in the OECS

Contribution rate (private employees)	With a 10% rate, only Grenada (9%) and Montserrat (9%) have a lower rate. 10% in St. Lucia and St. Vincent, 11% in St. Kitts-Nevis, 11.5% in Dominica.
Wage ceiling	At $6,500 per month, Antigua-Barbuda and St. Kitts-Nevis are the highest after Anguilla ($7,000); followed by Dominica ($5,055) and St. Lucia ($5,000).
Benefits package	Only Antigua-Barbuda and Anguilla do not explicitly offer employment injury benefits.
Pension Age	Only Antigua-Barbuda and Grenada still have 60. St. Kitts-Nevis (62) and Anguilla (65) are unchanged since inception, while Dominica, Montserrat, St. Lucia and St. Vincent & The Grenadines are gradually increasing to 65.
Pension Accrual rates	All others have a maximum pension of 60% of average insurable wages compared to 50% in Antigua-Barbuda.

Chapter 3 Best-Estimate Projections

Many demographic and economic factors, such as changes in the size and age structure of the population, economic growth, employment and wage levels and inflation, influence Social Security Fund finances. Therefore, to best assess the Fund's long-term costs and sustainability, projections of Antigua-Barbuda's total population and the economy are required. For this review 50-year projections have been performed.

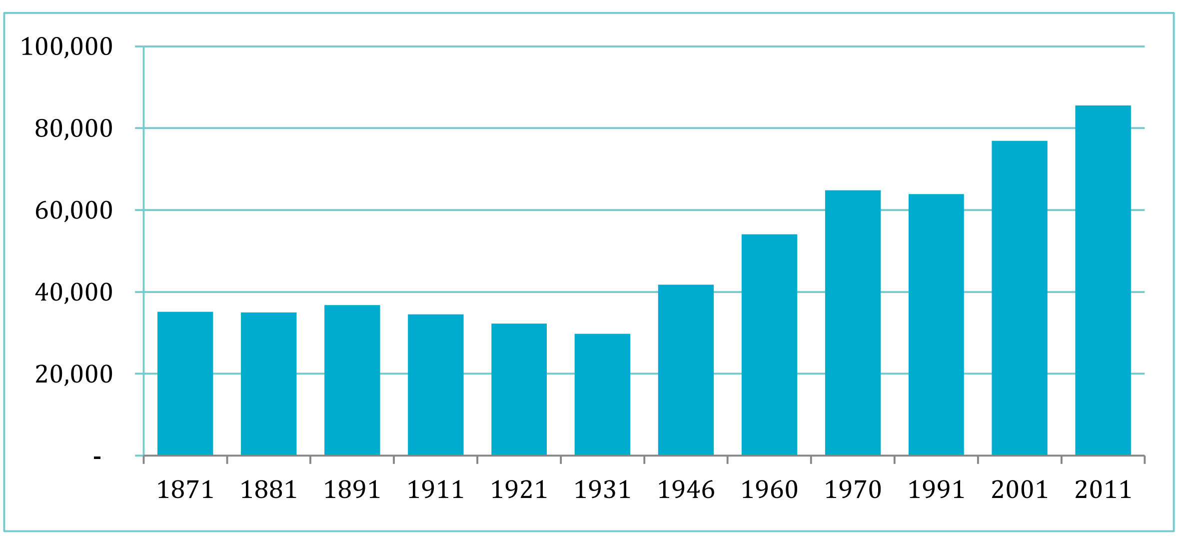
In developing the assumptions used for the projections, historical trends and reasonable future expectations, as well as the interrelationships between the various assumptions, have been taken into account. Core projections have been performed using assumptions that reflect best estimates. The demographic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

Given the uncertainty inherent in forecasting long periods, projections using additional sets of assumptions are typically performed. However, given that key decisions required at this time relate to short-term financing the sensitivity analyses and discussions presented in this report focus on the next 10 years and are presented in Chapter 4.

3.1 Population Projections

Antigua-Barbuda has experienced net in-migration for decades. However, over the most recent census period, 2001 to 2011, net inward migration was only 1,400, compared with 4,100 during the period 1991 to 2001. Fertility rates continue to decline while life expectancy continues to increase. Figure 3.1 below illustrates the growth of the population from 1871 to 2011.

Figure 3.1. Historical Antigua-Barbuda Population



3.1.1 Projection Assumptions

Projections of Antigua-Barbuda's population begin with the results of the 2011 census and in each projection year thereafter, fertility, mortality and migration assumptions are applied. Fertility rates are used to estimate the number of births each year 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 Antigua-Barbuda, and is the most volatile of the three factors. The 2011 population census placed Antigua-Barbuda's population at 85,567.

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. Antigua-Barbuda's TFR was estimated at between 1.6 and 1.7 over the period 2011 to 2014. For these projections it is assumed that TFR's in Antigua-Barbuda will be constant at 1.65.

The United Nations Latin America life table and the number of deaths in the past few years suggest life expectancy at birth in 2014 of around 74 for males and 79 for females. Improvements in life expectancy are assumed to occur in accordance with UN estimates.

The third factor that affects population size is migration. This is the most volatile and most difficult to measure. Between 2001 and 2011, net inward migration averaged around 140 per annum. For the baseline projections, net migration is assumed to be zero throughout the projection period.

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

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

Table 3.1. Principal Demographic & Economic Assumptions

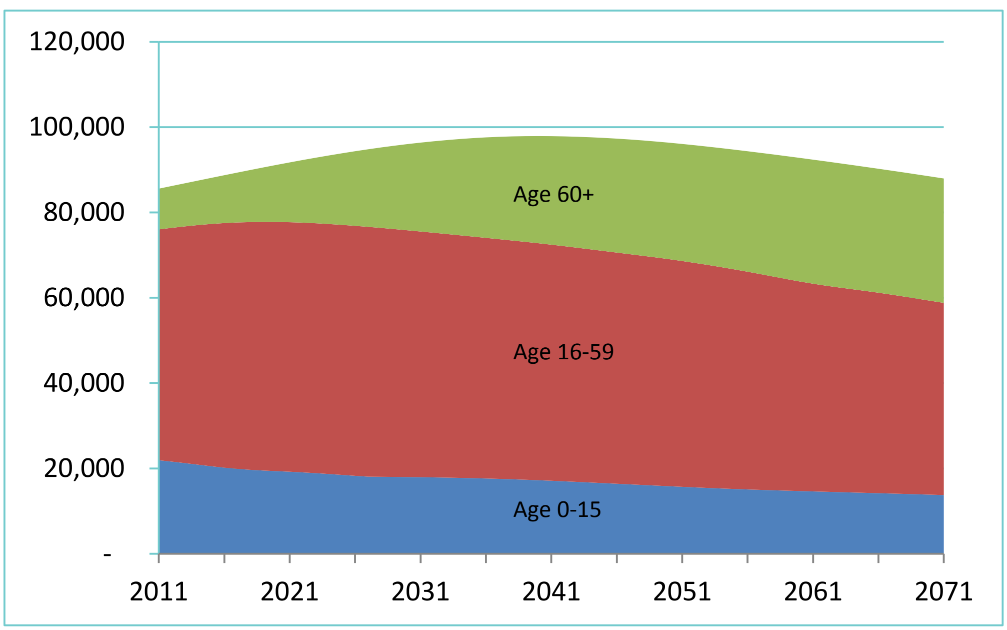
		10th & 11th Actuarial Reviews	9th Actuarial Review
Total Fertility Rate		1.65 in all years	1.8 in all years
Mortality Improvements^		Slow	Slow
Net In-Migration Per Annum		0	0
Real GDP Growth Rates	Short-term	1.5% decreasing to 1.0% in 2021	2.5%
	Med.-term	1.5%	2.0%
	Long-term	0.5%	1.0%
Real Increase in Wages		0.60%	0.75%
Long-term Inflation		2.5%	2.5%

^ UN mortality improvement rates

3.1.2 Projection Results

From the 2011 Census population of 85,567, and with the above assumptions, Antigua-Barbuda's population is projected to increase over the next 20 years and then gradually decrease.

Figure 3.2. Projected Antigua-Barbuda Population



It should be noted that the projections presented in this report have been prepared for the sole purpose of determining the implications for SSF finances.

For the SSF, while projected future population size is important, the age distribution is more critical, as pensions to the elderly represent the bulk of expenditure and contributions will be paid by those of working-age. As shown above, while the number of children and working-age persons is projected to decrease over time, the elderly population is expected to increase. These projections show a smaller projected population than presented in the 9th Actuarial Review.

3.2 Social Security Fund Projections

Best Estimate Social Security Fund demographic and financial projections have been modeled using the best-estimate population results, best estimate SS-specific assumptions and the contribution and benefit provisions that were in place on January 1, 2015.

3.2.1 Assumptions

Key Social Security assumptions are shown below.

Table 3.2. Social Security *Best Estimate* Assumptions

	10th & 11th Reviews	9th Review
Avg. Contribution Rate	9.87% in all years	7.7% in all years
Insurable Wage Ceiling increases	Increased to $7,000 in 2020 then annual by wage inflation thereafter	Increased to $6,000 in mid-2013 and then by wage inflation starting 2015
Short-term Benefits	Increasing from 0.75% to 0.8% of Insurable Earnings over 20 years	0.7% of insurable earnings increasing to 0.8% over 20 years
Pension Increases	5% in 2018 then annually by inflation starting 2020	5% in 2015 and then by price inflation thereafter.
Administrative Expenses	1.0% of Insurable Wages	1.2% of Insurable Wages
Investment Returns	$5 million per year	3.5% per annum

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

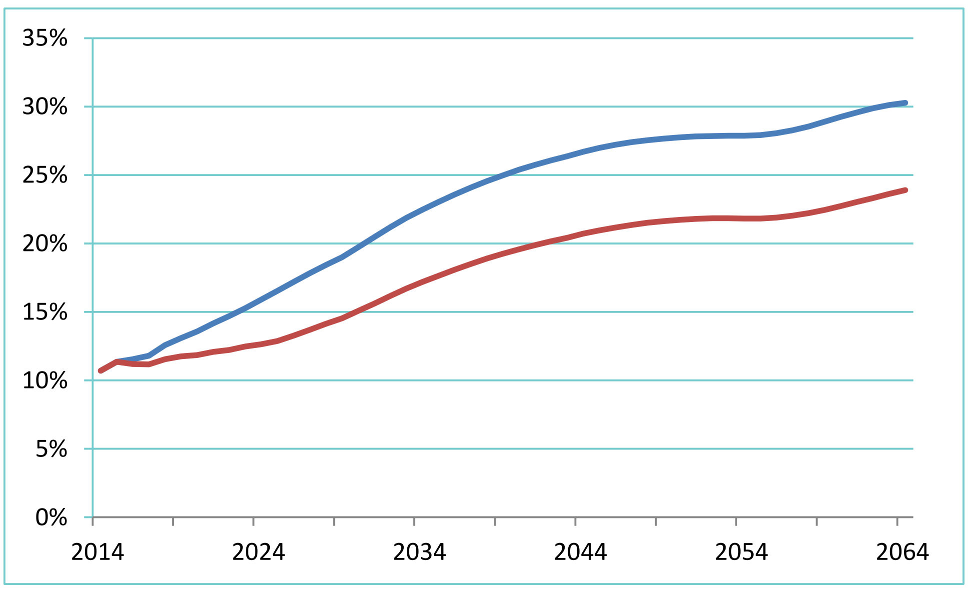
By assuming that the wage ceiling and pensions in payment will not be increased for several years and then every year thereafter in line with inflation, it is being assumed that the prevailing level of coverage and income security made possible by the ceiling and minimum pension will deteriorate slightly before being maintained throughout the remainder of the projection period.

3.2.2 Projection Results

Given that the Fund is currently operating on a pay-as-you-go basis without liquid assets, and there is much uncertainty surrounding what portion of reserves will actually be available to pay benefits in the future, the projections presented in this section ignore reserves and instead illustrate pay-as-you-go rates only. Scenarios where various portions of the reserves are available to meet benefit payments, and the implications for future contribution rates, are presented in Section 5.3.6.

Figure 3.2 below highlights key projection results using best-estimate assumptions with a further assumption that the contribution rate is not increased and that there are no changes to current benefit rules.

Figure 3.3. Current Contribution Rate & Projected Pay-As-You-Go (Expenditure) Rates



The key results of these projections are summarised as follows:

1. Expenditure will exceed contribution income in each year.
2. The pay-as-you-go rate will increase gradually to around 30% in 2064.
3. The number of contributors for each pension in payment is expected to fall from 3.9 in 2014 to 1.5 in 2064. This significant reduction is due in part to age 59 being the oldest age for contributors.

If reserves cannot be converted to cash, the contribution rate would have to be increased to the rates illustrated above (blue line) in order to pay benefits on time. If some assets can be converted to cash then lower contribution rates would be possible.

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

Table 3.3. Projected Income & Expenditure -*Best Estimate* (millions of $'s)

Year	Cash Inflows				Cash Outflows			Surplus/ (Deficit)	Pay As You Go Rate
	Contribution Income	Investment Income	Other Income	Total	Benefits	Admin. Expenses	Total		
2010	71.7	5.0	0.0	**76.8**	78.6	11.3	**90.0**	**(13.2)**	**9.1%**
2011	74.5	6.8	0.0	**81.3**	85.0	10.6	**95.6**	**(14.3)**	**9.7%**
2012	76.8	7.2	0.0	**84.0**	90.4	11.4	**101.9**	**(17.8)**	**10.3%**
2013	87.8	7.6	0.2	**95.7**	98.7	11.7	**110.4**	**(14.7)**	**10.5%**
2014	99.4	8.4	0.4	**108.1**	105.5	10.6	**116.1**	**(8.0)**	**10.7%**
2015	106.0	5.0	0.0	**111.0**	111.3	10.7	**122.1**	**(11.1)**	**11.4%**
2016	110.0	5.0	0.0	**115.0**	117.3	11.3	**128.6**	**(13.6)**	**11.5%**
2017	114.1	5.0	0.0	**119.1**	124.5	11.8	**136.3**	**(17.2)**	**11.8%**
2018	118.3	5.0	0.0	**123.3**	138.5	12.3	**150.8**	**(27.5)**	**12.6%**
2019	122.6	5.0	0.0	**127.6**	149.7	12.9	**162.7**	**(35.0)**	**13.1%**
2020	127.4	5.0	0.0	**132.4**	161.8	13.6	**175.4**	**(43.0)**	**13.6%**
2024	145.2	5.0	0.0	**150.2**	218.0	16.0	**234.1**	**(83.9)**	**15.9%**
2034	193.7	5.0	0.0	**198.7**	417.7	23.4	**441.1**	**(242.4)**	**22.5%**
2044	249.7	5.0	0.0	**254.7**	645.2	30.4	**675.5**	**(420.8)**	**26.7%**
2054	323.0	5.0	0.0	**328.0**	873.0	39.3	**912.3**	**(584.2)**	**27.9%**
2064	414.5	5.0	0.0	**419.5**	1,221.2	50.4	**1,271.5**	**(852.1)**	**30.3%**

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

Year	Long-term Pensions				Short-term Benefits	Benefits as a % of:	
	Age	Invalidity	Survivors	Old-Age Assistance		Insurable Wages	GDP
2010	64.1	2.4	4.0	0.6	7.6	**8.0%**	**2.6%**
2011	70.7	2.4	4.2	0.5	7.2	**8.7%**	**2.8%**
2012	76.1	2.3	4.4	0.4	7.2	**9.1%**	**2.8%**
2013	84.4	2.3	4.7	0.4	6.9	**9.4%**	**3.0%**
2014	89.9	2.3	4.8	0.3	8.2	**9.7%**	**3.1%**
2015	95.9	2.2	5.0	0.2	8.1	**10.4%**	**3.1%**
2016	101.5	2.2	5.1	0.2	8.4	**10.5%**	**3.2%**
2017	108.2	2.2	5.3	0.1	8.7	**10.8%**	**3.2%**
2018	121.2	2.3	5.8	0.1	9.1	**11.5%**	**3.4%**
2019	131.7	2.4	6.1	0.1	9.4	**12.1%**	**3.5%**
2020	142.9	2.5	6.5	0.0	9.8	**12.5%**	**3.7%**
2024	195.9	3.0	7.8	0.0	11.4	**14.8%**	**4.3%**
2034	384.6	3.9	13.5	-	15.7	**21.3%**	**6.0%**
2044	596.9	5.4	22.6	-	20.2	**25.5%**	**7.1%**
2054	806.0	7.5	33.3	-	26.2	**26.7%**	**7.4%**
2064	1,134.1	9.2	44.2	-	33.6	**29.1%**	**7.9%**

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

Year	# of Contributors	# of Pensioners				Total # of Pensioners	Ratio of Contributors to Pensioners
		Age	Invalidity	Survivors	Assistance		
2010	38,356	6,424	294	937	180	**7,655**	**5.0**
2011	37,693	6,907	278	954	155	**8,139**	**4.6**
2012	37,242	7,175	269	955	126	**8,399**	**4.4**
2013	37,897	7,476	259	936	106	**8,671**	**4.4**
2014	38,577	8,243	264	1,272	83	**9,779**	**3.9**
2015	39,060	8,483	260	1,100	74	**9,843**	**4.0**
2016	39,505	8,735	254	1,096	55	**10,085**	**3.9**
2017	39,949	9,038	255	1,099	39	**10,392**	**3.8**
2018	40,392	9,378	255	1,100	28	**10,733**	**3.8**
2019	40,828	9,737	256	1,097	20	**11,090**	**3.7**
2020	41,035	10,128	257	1,089	14	**11,474**	**3.6**
2024	41,767	11,928	265	1,028	3	**13,222**	**3.2**
2034	42,062	17,181	265	1,080	-	**18,525**	**2.3**
2044	41,015	20,799	273	1,263	-	**22,334**	**1.8**
2054	38,927	21,834	280	1,388	-	**23,503**	**1.7**
2064	35,808	22,852	251	1,392	-	**24,495**	**1.5**

3.3 Comparison With Results Of The 9th Actuarial Review

The following table shows a comparison between key projection results from the 9th Actuarial Review and this Review.

Table 3.6. Summary Results of 10th & 11th Review Compared With 9th Review

	9th Actuarial Review	10th & 11th Actuarial Reviews
Pay-as-you-go rate in 2059	28.5%	28.9%
# Contributors per pensioner in 2059	1.6	1.5

As shown above the results of this Review suggest a slightly less favourable outlook for the cost of benefits in the long-term. This is due mainly to a slightly smaller projected population and economy for this Review.

Chapter 4 Short-term Projections

Projections and analysis presented in this report are designed to enable informed decision making. Projections up to 2064 presented in the previous chapter provide estimates of future long-term Social Security Fund finances under best-estimate assumptions. Given the uncertainty in forecasting such a long period, alternative scenarios that highlight the sensitivity of the results to differences in assumptions regarding future outlook are usually presented. For this review, however, variances in long-term costs have little influence on recommendations made and the decisions required to improve current finances and reduce long-term costs. Therefore, this chapter presents 10-year projections of alternate income and expenditure scenarios.

The Fund has experienced deficits each year since 2011 and now has no liquid reserves. Therefore, expenditure has to be met from current contribution income plus additional sums received from the GOAB. The two charts on the following page illustrate projected pay-as-you-go rates and annual deficits under three scenarios – baseline scenario presented in the previous chapter along with optimistic and pessimistic scenarios. The optimistic outlook for the Fund models a faster-growing economy with higher wages, better compliance and slightly lower benefit expenditure while the pessimistic outlook would have fewer workers, lower wages, lower contribution compliance and slightly larger pensions. The following simplifying assumptions for insurable wage growth and benefit expenditure increase have been used to model these scenarios. The rates shown represent variances relative to the annual changes observed in the baseline projections presented in Chapter 3.

Table 4.1. Optimistic and Pessimistic Scenario Assumptions (relative to change in baseline scenario)

	Optimistic	*Pessimistic*
Insurable Wages	+2.0%	-2.0%
Benefit Expenditure	-0.5%	+0.5%

For each scenario it has also been assumed that $5 million of investment income will be received each year in cash and that pensions will be increased by 5% in 2018 and then by inflation thereafter.

Figure 4.1. Projected Pay-As-You-Go Rates – Three Scenarios

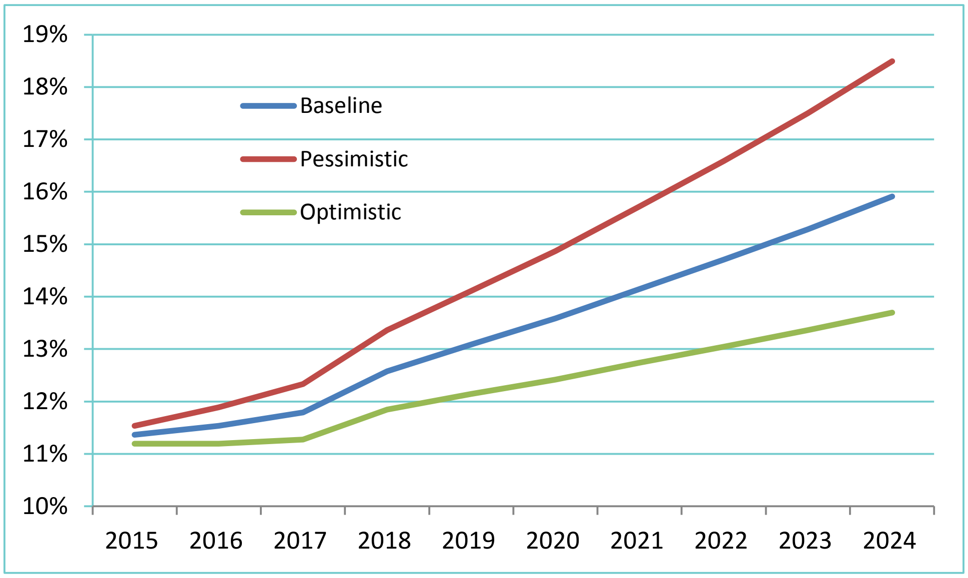
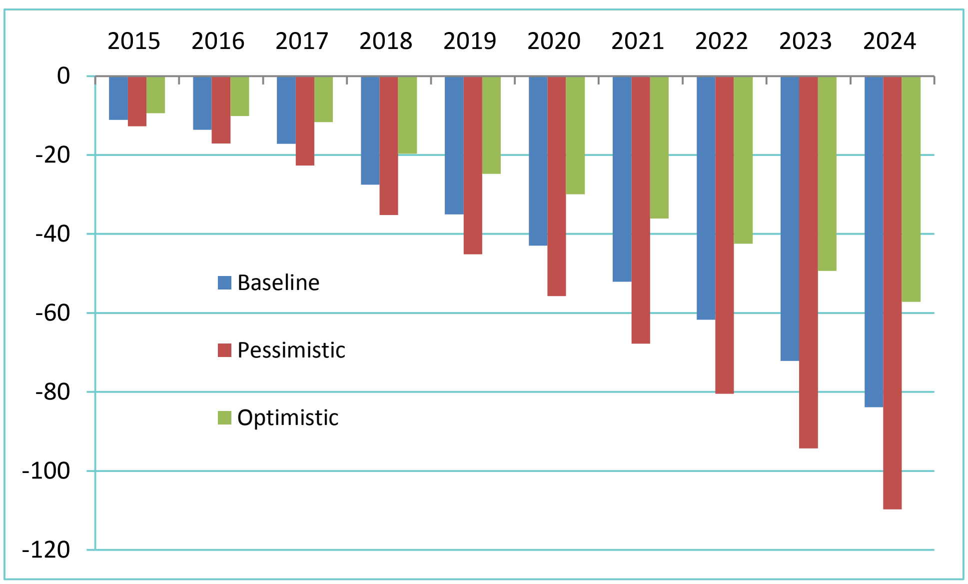


Figure 4.2. Projected Cash Flow Deficits



As shown above, annual deficits are projected each year under all three scenarios and these deficits will increase as pay-as-you-go rates increase. In 2024, SS expenditure could be as high as 18% of insurable wages if no changes are made to benefit provisions.

Feasible options for increasing revenue to meet expenditure are:

- contribution rate increases,
- extra ad hoc payments from Government,
- a formal schedule of accelerated principal payments under the MOU with Government, and
- selling other assets for cash.

Chapter 5 Enhancing Design & Sustainability

The Antigua-Barbuda Social Security Fund is currently operating on a less than ideal financing arrangement:

- Monthly benefit and administrative expenditure exceeds regular monthly contributions
- Investment income is minimal and not enough to make up the contribution shortfall
- There are no assets that can be converted to cash to help meet monthly expenditure
- Short-term benefits and pensions are being paid late
- Special requests are made to the GOAB each month to allocate an amount over and above its regular monthly contribution obligation so that benefit payments will not fall further behind.

While pay-as-you-go is an acceptable method of financing national pension systems, it is expected that there would be at least liquid reserves of one year's expenditure, and the ability to raise the contribution rate as expenditure increases. Currently, there are no liquid reserves and it is unlikely that annual contribution rate adjustments in line with projected pay-as-you-go rates will be possible.

The ability of any social security system to remain affordable and meaningful to insured persons is dependent on the following four ingredients:

1. A healthy and growing economy,
2. A well designed system,
3. Effective and efficient administration, and
4. Good governance.

While Social Security officials have little influence over the economy they can directly impact the other three ingredients. The remainder of this chapter contains recommendations aimed at enhancing these critical ingredients.

The following table summarises the recommended action steps to overcome the current challenges that have been identified in this report.

Table 5.1. ABSSB Policy Challenges And Options For Reform

	Current Challenges	Recommended Action
Coverage	• Most self-employed persons do not contribute	• More flexible options for self-employed contributions
Benefit Adequacy & Equity	• New Age pensions to those with high earnings benefiting greatly from recent ceiling increase • Eligibility for Survivors benefit different for widows and widowers	• Adjust insurable wages for new Age pensioners with high earnings • Use same eligibility conditions for widows and widowers
Financial Sustainability	• Improve compliance • Annual deficits with projected costs of 30% of insurable wages in 50 years	• Enhance links with government departments and agencies • Better enforcement and/or increased penalties for non-compliance • Reform Age pension rules • Grow income from properties by either leasing or selling • Adopt a policy for contribution rate increases
Administrative Efficiency	• Incomplete contribution data, especially from GOAB • Long turnaround times for some claims	• No tolerance approach (with consequences) for submission of incomplete records • Create policies for certain claims where extensive research to find all required data will not significantly affect benefit amount • Make greater use of available technology or upgrade where necessary
Good Governance	• Actuarial reports and financial statements not being laid in Parliament on a timely basis • Documented good governance guidelines not in place	• Table all reports that have not yet been tabled • Prepare good governance policies & guidelines for the SSB

5.1. Coverage

5.1.1 Self-employed Persons

It is estimated that fewer than 25% of self-employed persons made contributions in 2013 and 2014. Such a low participation rate is not uncommon in the Caribbean. Many individuals do not register and/or contribute simply because they either do not understand or appreciate the many benefits available to them, or they think that they can use their funds more effectively to provide for themselves. There are some, however, who simply delay and eventually do not pay because of the paperwork involved and the limited payment options available. While targeted campaigns on educating self-employed persons will likely help, new ways for self-employed persons to pay contributions should be put in place.

One such approach that may appeal to many with regular income and bank accounts, especially professionals, is automatic bank transfers of a set contribution amount without the need to complete a contribution form.

Another approach that may appeal to others whose incomes are irregular and typically in the form of cash, is the ability to make lump sum payments at any time - simply "put money on their account" as their means allow, without the need to complete a form. This latter approach will require revisions to current procedures as the contribution payable now is based on the amount earned and the number of weeks worked. An alternative approach whereby the amount paid during a given year is converted to average wages and number of contribution weeks can be developed. Such an approach can also serve to prevent self-employed persons "back-paying" several years of contributions simply to qualify for an Age pension. See Appendix E for details of the proposed alternative approach.

Enhanced and sustained public education activities highlighting the benefits of self-employed persons and informal sector workers contributing to SS should be continued.

5.2. Benefit Adequacy

5.2.1 Adjustments To Wage Ceiling, Pensions and Grants

Under normal circumstances, adjustments to pensions and grants would be recommended to offset the effect of inflation. Pensions and grants were last adjusted in 2005. Given the state of Fund finances no adjustment to pensions and grants is recommended at this time.

The ceiling was last increased in 2013 and is currently at a level where almost all wages are covered. No further increase is recommended at this time.

5.2.2 Calculation Of Age Pension For High Income Contributors

In May 2013 the wage ceiling was increased from $4,500 to $6,500. While this resulted in higher contribution payments from workers who earned more than $4,500 per month it also results in significantly larger pension amounts even though contributions at the higher level were only made for a very short period. The following table illustrates this for contributors who earn more than $6,500 per month and retire in December of each year.

Table 5.2. Age Pensions For Persons Who Earn $6,500 p.m.

Pension Awarded	# Months at $6,500 Ceiling	5-Year Final Avg. Ins. Wages	Monthly Pension (50%)	Extra Pension Earned (p.m.)	Extra Contribut-ions Made	# Months Pension For Full Payback
Dec. 2012	0	$4,500	$2,250	-	-	
Dec. 2013	8	$4,767	$2,384	$134	$1,600	12
Dec 2014	20	$5,167	$2,584	$334	$4,000	12
Dec. 2015	32	$5,567	$2,784	$534	$6,400	12
Dec. 2016	44	$5,967	$2,984	$734	$8,800	12
Dec. 2017	56	$6,367	$3,184	$934	$11,200	12
Dec. 2018	68	$6,500	$3,250	$1,000	$13,600	13.6
Dec. 2019	80	$6,500	$3,250	$1,000	$16,000	16

As shown above, highly paid persons who were awarded Age pensions since the 2013 ceiling increase have received pensions well in excess of those whose wages remained at the old $4,500 per month ceiling. As the last column illustrates, the "pay-back" period for these contributions is only one year for those qualifying up to April 2018 and only a few months longer thereafter. This windfall gain will continue for several more years as the above examples illustrate. Given that a 60-year old is expected to live for an average of 21 years this extra pension awarded is excessive and should be eliminated.

To eliminate such excessive pensions and limit the increase in pension amount it is recommended that only 50% of wages above the old $4,500 per month ceiling be used. The following examples illustrate this proposal.

Table 5.3. Age Pensions For Persons Who Earn $6,500 p.m. Under Revised Formula

Final Average Ins. Wage	Amount above $4,500	Adjustment	Final Avg. Ins. Wage used for Pension Calculation	Pension Under Adjusted Ins. Wages
$4,500	$ -	-	$4,500	$2,250
$5,000	$500	50% of $500	$4,750	$2,375
$5,500	$1,000	50% of $1,000	$5,000	$2,500
$6,000	$1,500	50% of $1,500	$5,250	$2,625
$6,500	$2,000	50% of $2,000	$5,500	$2,750

It is recommended that this formula be reviewed when future actuarial reviews are conducted but should remain in place until at least 2020.

5.2.3 Employment Injury Benefits

As mentioned in previous actuarial review reports, the Antigua-Barbuda Social Security does not offer explicit coverage for work-related injuries and diseases as found in most other social security schemes in the Caribbean. Instead, employers are expected to purchase Workers Compensation from private insurance companies.

An extensive discussion of adding Employment Injury benefits was presented in the report of the 9th Actuarial Review. Given the other challenges now faced by the Fund, adding Employment Injury benefits similar to those found in other Caribbean countries, is not considered a top priority. However, if it is felt that the current private coverage for job-related accidents and diseases is inadequate then consideration could be given to adding “social security style” employment injury/disease benefits with a new contribution rate of ½%.

5.3. Financial Sustainability

Enhancing financial sustainability can be achieved through avenues that either increase revenue from contributions and investments, or reduce the growth of benefit expenditure and administrative costs. For expenditure, while the Board can directly influence administrative costs, it has little control over benefit payment amounts which are driven primarily by each benefit’s rules. While benefit rules can be revised, the primary control that can be placed on benefit expenditure is ensuing that the correct benefit is paid to the correct person at the correct amount for the correct period.

A discussion of administrative costs is presented in section 5.4. The remainder of this section deals with ways of increasing revenue to enhance financial sustainability.

5.3.1 Compliance

Contributions arrears, especially by Government and statutory bodies, have been a challenge for the ABSS partly because it failed to prosecute businesses as the law permits. Failure to pay Social Security contributions on time, for all employees, and for their full wages, is an offence that is punishable by law. The Board should fully enforce all existing avenues available to it and identify new means of ensuring that all who are required to contribute do so on a timely basis. One new approach that could enhance compliance is the establishment of links with all Government departments that issue licenses, permits and approvals in Antigua-Barbuda. By either issuing letters of good standing or allowing Government departments to access the current contribution status of employers, Government permits and licenses should only be issued if the employer is up-to-date with SS contributions. The same should apply for Government contracts.

While special considerations may be given to the repayment of arrears given the current economic climate, there should be a zero-tolerance approach to non-compliance for current contributions.

5.3.2 Normal Pensionable Age To 65

As recommend in previous actuarial reviews the age at which full Age pensions is payable should be gradually increased to 65. This change is both consistent with increases in life expectancy since Social Security was established over forty years ago and with the need to reduce long-term benefit costs.

Given the financial challenges being faced by the Fund, it is recommended that increases to pensionable age occur at the fastest possible pace that would not cause undue hardship or excessive changes in expectation to those now nearing age 60. The approach that best fits these criteria is for pensionable age increases of one year every other year, starting in 2016.

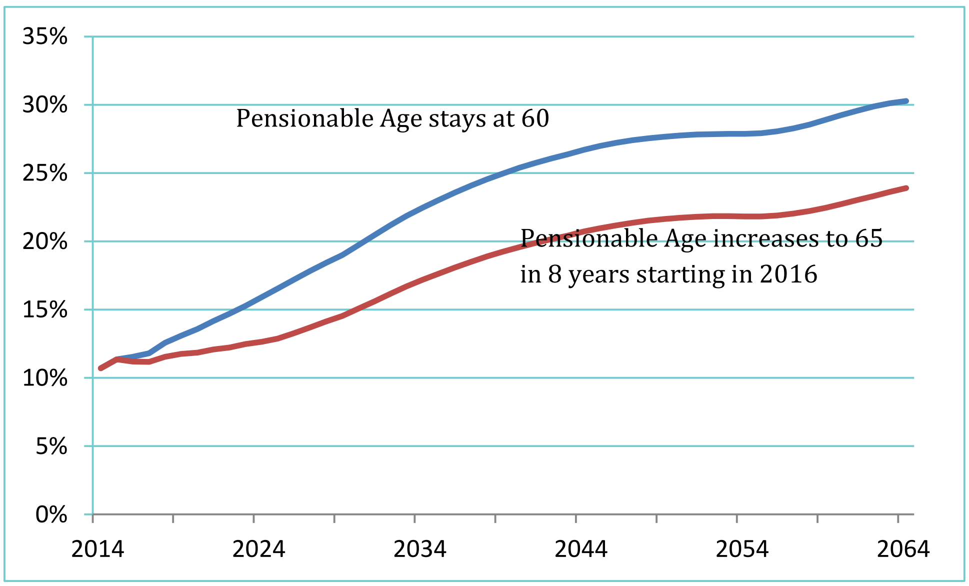
Table 5.4. Recommended Schedule For Pensionable Age Increases

Year	Pensionable Age
2016 to 2017	61
2018 to 2019	62
2020 to 2021	63
2022 to 2023	64
2024 onwards	65

It is further recommended that age 60 be kept as the age at which reduced Age pensions are first payable with options to claim at any age between 60 and normal pension age. The reduction that should be applied to early pensions is ½% for each month that the pension will start and Pensionable Age at that time. For example, if the pension is set to start at age 60 years and 6 months and pensionable age is 63, the amount payable would be reduced by 15% given that the claimant is 30 months younger than Pensionable Age.

The effect of increasing the normal pension age as described above, on the projected pay-as-you-go rate is illustrated in the following chart. As shown, this change has a positive effect on long-term pay-as-you-go rates as time passes.

Figure 5.1. Projected PAYG Rates for Pensinage Age At 60 & 65



Once Pensionable Age starts increasing to 65, the award of an early Age pension should be contingent on the person being retired, or at least substantially retired. Substantially retired could be defined as earnings of less than 50% of the wage ceiling or your highest wage while employed.

When the normal pension age is being increased the age at award for Age grants should be set as the normal pension age.

5.3.3 Reduced Age Pensions

There are currently two classes of Age pensions:- Full Age pension and Reduced Age pension. The contribution requirements for the Full and Reduced Age Pensions are 500 weeks and 350 weeks, respectively. Original Regulations intended that other than for those who first paid contributions prior to 1975, the minimum requirement for an Age pension was to be 500 weeks.

After more than 40 years of existence the minimum contribution requirement for a lifetime Age pension should be increased to at least 500 weeks, approximately 10 years. This is the minimum requirement in most Caribbean social security schemes; in Guyana and Trinidad & Tobago, the requirement is 750 weeks. It is recommended that Reduced Age pensions be eliminated immediately and that 500 weeks be the contribution requirement for an Age pension.

5.3.4 Contribution Rate Increases

As shown in Chapters 3 and 4, pay-as-you-go rates, or total expenditure relative to insurable wages already exceed the current average contribution rate. Further gradual increases in pay-as-you-go rates are projected. Had there been investments that could be sold, contribution rate increases could have been deferred. With no liquid assets, contribution rate increases will be necessary if the Fund is to meet its obligations on time. Having to depend on special payments from Government each month is not an ideal method of funding pension promises.

To ensure that future rate increases are gradual and predictable it is recommended that a policy for rate increases be established. Such a policy should set out when a rate increase should occur and the amount of the increase. Below are examples of contribution increase strategies for the next 10 years under the premise that no existing reserves will be available to meet expenditure.

Table 5.5. Funding Objectives And Rate Increase Strategies

Strategy	How It Works
Contribute Pay-as-you-go rate	Each October, estimate expenditure for the next year and set the contribution rate so that just enough contribution income will be collected to meet expenditure.
Gradually build liquid reserves of at least 3 month's of expenditure	Same as (1) above with an extra ½% added to build up contingency reserves.
Gradually build liquid reserves of at least 6 months of expenditure	Same as (1) above with an extra 1% added to build up for contingency reserves.

Based on the projections presented in Chapter 4 the contribution rates would have to gradually increase to between 16% and 17% by 2024 for the above strategies. For the sake of comparison only, the current contribution rate in Barbados for comparable benefits is 17.75%.

5.3.5 Revenue From Properties

The Fund owns several properties/buildings in St. John's and land at Paynters. Combined, the carrying value as of December 2014 was $38.3 million. Rental income from these properties in 2014 was $0.21 million, well below market rates of return. The annual cost of maintaining these properties is unknown.

Assets should generate regular streams of income. It is, therefore, recommended that each non-financial asset be evaluated and a decision made as to whether it should be sold, leased at market rates or kept. Any decision to lease or keep an asset should be based on its ability to generate a market rate of return for the Fund.

5.3.6 MOU Between Social Security & Government

Details of the MOU signed between the GOAB and SSB in 2010 may be found in Section 1.4. While the MOU formalised the amount owed to the Fund and terms for its repayment, it did not provide for any near-term financial relief for repayment of the large amount outstanding. The sole commitment by the GOAB that helps current finances is the on-time payment of current contributions. Other commitments for repayment in the MOU included the transfer of properties owned by GOAB and the servicing of a low-interest rate 30-year bond with principal payments deferred for 20 years.

The Government is not currently in a strong fiscal position and debt levels are high. Given its history of not meeting many of its SS obligations, as well as the debt restructurings, ("haircuts") that have occurred in several Caribbean countries, the full repayment of the amount under the MOU is uncertain. An analysis of the effect of a debt restructuring by Government has been made for varying levels of "haircuts" on debt and contribution rate increases, all under the assumptions that the pension age will be increased to 65 starting in 2016. Following are several conclusions from this assessment:

- From a Social Security cash flow perspective, there is little difference in the short and medium terms between a "haircut" on outstanding debt and the current MOU, as under the MOU, repayment of principal occurs between 2031 and 2041. Even if Government made all of the interest payments in full and on time before then, the contribution rate would have to increase to around 15% within the next 10 years under either scenario.
- Contribution rate increases to at least 15% over the next 10 years will be required unless Government is able to make extra payments to the Fund increasing from around $1 million per month in 2016 to $5 million per month in 2025.
- Even with a 50% "haircut" and the contribution rate increasing to 15% by 2024, the repayment of remaining principal will still be required before 2041 in order for benefits to be met on time.

It should be noted that a reduction in Government's debt to Social Security does not materially change the amount that tax payers (businesses and workers) will be required to pay to the Government in the form of taxes, as these same businesses and workers will be required to make additional Social Security contributions. Therefore, the effect of a "haircut" on Government debt to Social Security will be more cosmetic than real.

5.4. Administrative Efficiency

Administrative efficiency relates to both how well Social Security administers the social security program (collects contributions, adjudicates and pays benefits and invests surplus funds) and how much it costs to perform these functions.

Administrative costs in recent years approximated 12.5% of contributions, which by regional standards is very good. The Board is encouraged to maintain existing cost structures and seek ways to further reduce costs so that a greater portion of contribution income goes towards the payment of benefits.

There continues to be major challenges, however, with the completeness of data and records which ultimately results in useful reports and analysis being unavailable or not credible. They also result in extensive delays in the award of pensions. The genesis of these challenges is most often the collection of incomplete contribution data, especially from GOAB. For decades SS has accepted incomplete records from Government and other employers, and thus SS employees must perform extra tasks that would not have been necessary had the date been complete at the outset. A no-tolerance approach to incomplete contribution data should be put in place and enforced.

The provision of timely and accurate financials has been a challenge for many years. Some progress is being made in this regard and it is anticipated that audited financials up to 2014 would be available by the end of 2015. Thereafter, the Board should ensure that audited financials are prepared within six months of the year-end and then forward to the Minister as required by the Act.

5.5. Other Matters

5.5.1 Tabling Of Reports in Parliament

Sections 17 and 18 of the Social Security Act require that the Board submit certified annual audited financial statements and reports of triennial actuarial reviews to the Minister. The Minister is then required to lay before Parliament a copy of these reports as soon as possible after receiving them. The Social Security Board has been tardy in having both financial statements audited (2009 being latest) and actuarial reviews conducted (9th Review as at December 2009 being the latest). While audited statements and actuarial reports prior to these were submitted to the minister, several have not been laid before Parliament.

Audited financial statements and actuarial reviews provide stakeholders and the general public with pertinent information about the state of the Social Security Fund. Since these reports have not been consistently laid in Parliament, the current and future states of Fund finances have not been regularly shared with the public for many years through this means. However, the report of the 9th Actuarial Review is currently available on the official website of the Government of Antigua-Barbuda. It is therefore recommended that the Board send to the Minister all reports that are yet to be laid in Parliament and the Minister should table these reports at the earliest opportunity..

5.5.2 Branch Allocations & Transfer of Reserves

Management financial statements provided for 2010 to 2014 do not include specific accounting for each benefit branch. As a result, no recommendation on the allocation of contribution by branch and transfers between branches is included in this report. It should be noted that changes in the allocation of contribution and investment income, and transfer of reserves between branches, has no impact on the overall present or future financial position of the Social Security Fund. These adjustments are for internal accounting purposes only and are consistent with the manner in which SS has elected to finance and account for the various types of benefits.

Chapter 6 Good Governance

A very influential but often invisible contributor to the state of public sector agencies is political interference and the failure to adopt and follow good governance practices. The poor financial state of the Antigua-Barbuda Social Security Fund can in large part be attributed to poor governance practices at all levels of the governance structure.

6.1. ISSA Good Governance Guidelines

To enhance governance in social security schemes around the world, the International Social Security Association (ISSA) in 2011 published *ISSA Good Governance Guidelines for Social Security Institutions*. These guidelines provide ISSA member organizations with guiding principles and practical guidelines on good governance.

ISSA defines governance as:

"the manner in which the vested authority uses its powers to achieve the institution's objectives, including its powers to design, implement and innovate the organisation's policies, rules, systems and processes, and to engage and involve stakeholders."

ISSA's *Good Governance Guidelines* further suggests that "good governance implies that the exercise of the vested authority is accountable, transparent, predictable, participative and dynamic." It describes these five principles as follows:

Accountability is the ability to hold legally responsible the officials who are in charge of the institution for managing the program prudently, efficiently and equitably.

Transparency is the availability and accessibility of accurate, essential and timely information to stakeholders and in reference to the decision-making process, promotes honesty, integrity and competence, and discouraging wrongdoing.

Predictability refers to the consistent application of the law, policies, rules and regulations. Surprises and sudden changes in contribution rates, benefit entitlements or other features could undermine the credibility of the programme.

Participation refers to the active education, engagement and effective involvement of stakeholders to ensure the protection of their interests.

The principle of *dynamism* is defined as the element of positive change in governance. While the first four principles of governance may well be applied in the context of maintaining the status quo, dynamism refers to changing and improving by doing things more efficiently and equitably, and by responding to the evolving needs of insured persons.

6.2. Social Security Good Governance Guidelines

Using guidance provided by ISSA's Good Governance Guidelines, it is strongly recommended that the Board adopt the principles and guidelines included in ISSA's *Good Governance Guidelines* and initiate steps to ensure that good governance practices are commonplace in all aspects of Social Security's administration. Key to the creation of this new approach to governance is the creation of a Good Governance manual that is localized for the Antigua-Barbuda Social Security Board. This manual should, at a minimum, include the following:

a) Powers of the Minister
b) Functions and duties of the Board
c) Terms of reference for the Chairman, Executive Director and Committees of the Board
d) Orientation & Continuing Education for Board Members Policy
e) Disclosure of Information Policy
f) Confidential Information Policy
g) Conflict of Interest Policy

Statement of Actuarial Opinion

It is our opinion that for this report of the 10th and 11th Actuarial Reviews of the Social Security Fund:

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

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

Morneau Shepell Ltd.

Derek Osborne
Partner

Marcia Tam-Marks
Principal

September 4th, 2015

References

2011 Population & Housing Census, Statistics Division, Ministy of Finance

2012 Article IV Consultation, IMF, August 2014

Concluding Statement of the 2014 Article IV Mission, IMF, December 2014

Financial Statements of the Social Security Fund

Public Expenditure & Financial Accoutnability (PEFA) Peformance Assessment, IMF, February 2015

Reports of the 8th and 9th Actuarial Reviews of the Social Security Fund, Horizonow Consulting Ltd.

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Appendix A Summary of Contribution & Benefit Provisions

Following is a general description of the coverage, contributions and benefits provisions of the Antigua-Barbuda Social Security Board (ABSSB) as at December 31st 2014.

A.1 Contingencies Covered & Benefits Provided

The ABSSB provides for the following benefits:

- ***Short-term Benefits:*** Sickness benefit, Maternity benefit and Funeral grant.
- ***Long-term Benefits:*** Age, Invalidity and Survivors' pensions and grants as well as a non-contributory benefit (Old-Age Assistance).

A.1.1 Insured Persons

Employed and self-employed persons from age 16 to 60 as follows:

- Employed persons in the private sector are covered for all benefits;
- Employed persons in the public sector are covered for all benefits except Sickness benefit;
- Self-employed persons are covered for all benefits;
- Voluntary insured persons are covered for long-term benefits only.

Coverage and payment of contributions by all employed and self-employed persons are mandatory.

A.1.2 Insurable Earnings and Contributions

In addition to salary, insurable earnings include overtime pay, cost of living allowance, commissions, service charges, additional payments in respect of dependents, payment for night or shift work, production bonus, danger or dirt money or similar payments, incentive pay, housing allowances, supplements for long service industry or efficiency, payment *in lieu* of alternative practice and or additional employment, holiday pay or other amounts set aside out of the employed person's remuneration throughout the year or part of the year to be paid to him periodically.

Earnings that are covered for the purpose of determining contributions and benefits, are limited to EC$1,500 per week or EC$6,500 per month. The monthly ceiling on insurable earnings has been adjusted as follows:

April 1973 – May 1986	$1,500
June 1986 – June 1993	$2,500
July 1993 – April 2013	$4,500
May 2013 – present	$6,500

Contributions are computed as a percentage of insurable earnings. The following table shows the contribution rates payable by employers and employees for the various categories of insureds.

Table A.1 Contribution Rates

Insured Category	Employee	Employer	Total
Private sector	4%	6%	10%
Public sector	3%	6%	9%
Self-employed	-	-	10%

A.2 Benefit Provisions

A.2.1 Long-Term Benefits

(a) AGE PENSION

CONTRIBUTION REQUIREMENT:

Reduced pension: paid or credited 350 to 499 contributions

Full pension: At least 500 contributions

AGE REQUIREMENT: 60. The pension is not dependent on retirement from the workforce.

AMOUNT OF BENEFIT: 25 per cent of average insurable earnings over the best 5 years out of the last 10 years, plus 1% for every set of 50 contributions over 500.

If between 349 and 500 credits have been paid, the insured qualifies for a *Reduced Age* Pension of 25% of average insurable earnings times the number of paid weeks divided by 500.

- Maximum: 50% of average insurable earnings.
- Minimum: EC$350 per month. The minimum pension also applies to Invalidity and
- Survivors' pensions.

(b) AGE GRANT

CONTRIBUTION REQUIREMENT: Has paid not less than 52 weeks contribution or monthly equivalent thereof.

ELIGIBILITY: The person must be ineligible for Age Pension.

AGE REQUIREMENT: 60.

AMOUNT OF BENEFIT: 75% of the total contributions paid in respect of that person or $1,200, whichever is greater. This amount is paid as a lump sum.

(c) INVALIDITY PENSION

CONTRIBUTION REQUIREMENT: 156 weekly contributions paid.

ELIGIBILITY: The insured is:

- less than 60,
- unable to take part in any further employment because of illness that is likely to remain permanent.

AMOUNT OF BENEFIT: 25 per cent of average insurable earnings over the best 5 years out of the last 10 years, plus 1% for every set of 50 contributions over 500. If less than 5 years contributions have been made, the average will be taken over those years only.

DURATION OF PENSION: Payable for as long as invalidity continues.

(d) INVALIDITY GRANT

CONTRIBUTION REQUIREMENT: At least paid for 52 weeks or 12 months.

ELIGIBILITY: Other than for not meeting the contribution requirements, the person must be eligible for Invalidity Pension.

AMOUNT OF BENEFIT: 75% of the total contributions paid in respect of that person or $1,200, whichever is greater. This amount is paid as a lump sum.

(e) SURVIVORS' PENSION

CONTRIBUTION REQUIREMENT: The deceased was in receipt of an invalidity pension (having paid at least 156 contributions) or an age pension (having paid at least 350 contributions).

ELIGIBILTY: Survivors of the deceased who may be entitled to payments are widows, invalid widowers, unmarried children (including adopted & step-children). For widows and widowers, marriage (legal or common law) must have taken place before the insured person started receiving a pension.

- *Widows* must have been married to or living with the deceased for at least 3 years.
- *Widowers* must have been married to or living with the deceased for at least 3 years, invalid, and were wholly or mainly maintained by the deceased.
- *Children* up to age 16, or 18 if attending school, or invalid of any age.

AMOUNT OF BENEFIT: The proportion shown below of the pension either being received by the deceased or the Invalidity Pension the deceased would have been entitled to:

- Widow or widower: 50%;
- Children: 25% per child. Where there is an eligible spouse and 3 or more children, the remaining 50% is divided equally among the children but no child shall receive less than the minimum child pension. However, where the pension available for all children is insufficient, the maximum number of children possible will receive the minimum pension rate.
- Minimum widow/widower benefit: $350 per month
- Minimum child benefit: $87.50 per month
- Maximum family benefit: 100% of Age pension.

DURATION OF BENEFIT:

Widows' pension:

- For life, if at the date of death she was either at least 50 or less than 50 but invalid, and married for at least 3 years
- For 1 year only, if at the date of the spouse's death she was less than 50 and not an invalid, or she was at least 50 but married for less than 3 years.

For a widower, pension is payable as long as conditions for invalidity eligibility continue or until remarriage/cohabitation with a woman.

For dependent children/orphans, pension will be paid up to age 16, or 18 if attending school, or until recovery from invalidity.

(f) SURVIVORS' GRANT

CONTRIBUTION REQUIREMENT: Qualify for Age or Invalidity grant.

AMOUNT OF BENEFIT: The same proportion of the Age Grant as Survivors' Pension bears to the Age Pension.

(g) OLD- AGE (Non-Contributory) PENSION

CONTRIBUTION REQUIREMENT: None

AGE REQUIREMENT: At least 65 in 1993. However, if the applicant has attained age 60 and is blind or disabled, is unable to earn a living and his/her total annual income is less than EC$5,000 per annum the pension may be awarded.

OTHER REQUIREMENTS: Must be a citizen of Antigua and Barbuda who has ordinarily resided in Antigua and Barbuda for at least fifteen years; or be a non-national who has ordinarily resided in Antigua and Barbuda for at least twenty years preceding the date of application for assistance. Also, income from all sources must be less than EC$5,000 per annum.

AMOUNT OF BENEFIT: $255 per month.

A.2.2 Short-Term Benefits

(a) SICKNESS BENEFIT

ELIGIBILITY REQUIREMENTS: Must have been engaged in insurable employment the day before the onset of the illness, paid at least 26 weekly contributions and have worked at least 8 weeks in the 3 calendar months before the illness began. The insured must also be under age 60.

WAITING PERIOD: 3 days. If a subsequent period of illness is separated by less than eight weeks from the first period, benefits will be paid from the first day.

AMOUNT OF BENEFIT: 60% of the total insurable earnings during the three calendar months immediately prior to the illness, divided by the number of weeks worked.

DURATION OF BENEFIT: Maximum of 39 weeks of continuous illness provided that there is a second medical opinion after 26 weeks.

(b) MATERNITY ALLOWANCE

CONTRIBUTION REQUIREMENT: At least 26 paid contribution weeks in the 52-week period immediately preceding:

- 6 weeks before the expected week of confinement, or
- the week from which the allowance is claimed.

AMOUNT OF BENEFIT: 60% of the total insurable earnings during the 52 weeks immediately preceding the 6-week period before the expected date of delivery, divided by the number of weeks worked, which cannot be less than 26.

DURATION OF BENEFIT: Maximum of 13 weeks, starting no earlier than 6 weeks before the expected date of confinement.

(c) MATERNITY GRANT

CONTRIBUTION REQUIREMENT: At least 26 weekly contributions paid since entering the scheme and at least 26 weekly contributions in the year immediately before confinements either by the woman or her husband.

AMOUNT OF GRANT: $560. The Maternity Grant has increased on an ad-hoc basis as follows:

1973 – 1978	$ 25
1978 – 1986	$ 40
1986 – 1993	$ 60
1994 – 2000	$400
2001 - present	$560

(d) FUNERAL GRANT

ELIGIBILITY: A person or persons who have paid or will pay the cost of the funeral of a deceased insured person who:

- had been receiving Sickness or Maternity benefit, or would have been entitled to such benefit at the time of death, or
- had been receiving, had received or had satisfied the conditions for receiving Invalidity or Age benefits, or
- had paid at least 26 contributions in the 12 months immediately before death.

AMOUNT OF GRANT: $2,500. The funeral grant for the insured has been increased on an ad-hoc basis as follows:

1973 – 1978	$ 150
1978 – 1986	$ 250
1986 – 1993	$ 500
1994 – 2000	$2,000
2001 – present	$2,500

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 Antigua-Barbuda and the Social Security 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 Antigua-Barbuda's future demographic and economic environment. Next, projection factors specifically related to Social Security 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 Antigua-Barbuda population has been projected beginning with totals obtained from the preliminary results of the 2011 national census and by applying appropriate mortality, fertility and migration assumptions. For the Best Estimate scenario the total fertility rate is assumed to remain constant at 1.65 throughout the projection period, although the age structure is expected to shift to older ages. Table B.1 shows ultimate age-specific and total fertility rates.

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

Age Group	2014	2025
15 - 19	0.027	0.022
20 - 24	0.082	0.065
25 - 29	0.090	0.089
30 - 34	0.074	0.079
35 - 39	0.041	0.061
40 - 44	0.017	0.015
45 - 49	0.001	0.000
TFR	1.65	1.65

Mortality rates have been determined using United Nations life tables for Latin America. These rates have been adjusted selected to model closely the actual number of deaths in Antigua-Barbuda. Improvements in life expectancy for the Best Estimate scenario have been assumed to follow the “slow” rate as established by the United Nations. Sample mortality rates for the Best Estimate scenario and the life expectancies at birth and at age 60 for sample years are provided in Table B.2.

Table B.2. Sample Mortality Rates & Life Expectancies

Age	Males			Females		
	2014	2039	2064	2014	2039	2064
0	0.0276	0.0087	0.0041	0.0072	0.0052	0.0038
5	0.0006	0.0003	0.0001	0.0004	0.0003	0.0002
15	0.0004	0.0004	0.0002	0.0003	0.0002	0.0001
25	0.0008	0.0010	0.0009	0.0004	0.0004	0.0003
35	0.0012	0.0011	0.0009	0.0008	0.0006	0.0005
45	0.0026	0.0024	0.0019	0.0018	0.0015	0.0011
55	0.0066	0.0064	0.0054	0.0042	0.0035	0.0027
65	0.0172	0.0161	0.0128	0.0106	0.0085	0.0063
75	0.0447	0.0447	0.0370	0.0332	0.0273	0.0207
85	0.1112	0.1227	0.1150	0.1078	0.0955	0.0818
95	0.2507	0.2765	0.2738	0.2678	0.2502	0.2338
Life Expectancy at:						
Birth	74.3	76.2	77.6	79.4	81.2	82.7
Age 60	20.5	20.4	21.3	22.6	23.9	25.0

Net migration (in minus out) is assumed to be zero for all ages throughout the projection period.

The projection of the labour force, i.e. the number of people available for work, is obtained by applying assumed labour force participation rates to the projected number of persons in the total population. Over the first 30 years age-specific labour force participation rates for both males and females for ages 45 and over are assumed to gradually approach the rates that in 2014 apply to persons three years younger. Table B.3 below shows the assumed age-specific labour force participation rates in 2014 and 2064.

Table B.3. Age-Specific & Total Labour Force Participation Rates

Age	Males		Females	
	2014	2064	2014	2064
17	19%	19%	16%	16%
22	72%	72%	67%	67%
27	81%	81%	81%	81%
32	91%	91%	86%	86%
37	90%	90%	88%	88%
42	90%	90%	86%	86%
47	89%	90%	84%	86%
52	89%	89%	82%	83%
57	81%	85%	70%	77%
62	52%	68%	35%	55%
67	32%	42%	18%	26%

Year	Males	Females
2014	74%	70%
2019	75%	70%
2024	75%	69%
2034	76%	69%
2044	77%	70%
2054	76%	69%
2064	75%	69%

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 projection assumptions for each scenario may be found in Table 4.1.

B.2 Projection of Social Security Income & Expenditure

This actuarial review addresses all Social Security Fund revenue and expenditure items. For Short-term benefits, income and expenditure are projected as a percentage of insurable earnings. Projections of pensions are performed following a year-by-year cohort methodology. For each year up to 2064, the number of contributors and pensioners, and the dollar value of contributions, benefits and administrative expenditure, is estimated.

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

Benefit amounts are obtained through contingency factors based primarily on Scheme experience and applied to the population entitled to benefits. Investment income is assumed to be constant each year. Social Security's administrative expenses are modelled as a percentage of insurable earnings. Finally, the end-of-year reserve is the beginning-of-year reserve plus the net result of cash inflow and outflow.

B.3 Social Security Population Data and Assumptions

The data required for the valuation of the Social Security Fund is extensive. As of December 31st, 2014, required data includes the insured population by active and inactive status, the distribution of insurable wages among contributors, the distribution of paid and credited contributions and pensions in payment, all segregated by age and sex.

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

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

Details of Social Security specific input data and the key assumptions used in this report are provided in tables B.4 through B.8.

Table B.4. 2014 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	344	387	396	379	1	1
20 - 24	1,938	2,147	519	501	1	1
25 - 29	2,284	2,802	624	590	4	4
30 - 34	2,426	3,016	701	638	7	6
35 - 39	2,317	3,060	771	668	9	9
40 - 44	2,227	3,071	812	659	12	12
45 - 49	2,145	2,905	835	646	15	15
50 - 54	1,826	2,463	834	623	17	17
55 - 59	1,411	1,839	840	633	21	21
All Ages	**16,919**	**21,690**	**731**	**620**	**10.1**	**10.2**

Table B.5. Pensions in Payment - December 2014

Age	Old-Age Benefit		Invalidity Benefit		Survivors Benefits		Assistance	
	Male	Female	Male	Female	Male	Female	Male	Female
0 - 4			-	-	10	3	-	-
5 - 9			-	-	56	21	-	-
10 - 14			-	-	82	40	-	-
15 - 19	-	-	-	-	89	43	-	-
20 - 24	-	-	-	-	-	-	-	-
25 - 29	-	-	-	-	2	1	-	-
30 - 34	-	-	1	1	2	-	-	-
35 - 39	-	-	1	5	3	-	-	-
40 - 44	-	-	8	12	3	-	-	-
45 - 49	-	-	15	30	4	-	-	-
50 - 54	-	-	29	45	15	1	-	-
55 - 59	-	-	49	72	73	-	-	-
60 - 64	1,341	1,556	1	3	72	-	-	-
65 - 69	1,089	1,285	1	-	102	-	-	-
70 - 74	608	719	1	-	124	-	-	-
75 - 79	375	426	-	-	126	-	-	1
80 - 84	215	265	-	2	121	1	-	2
85 - 89	111	141	-	-	79	1	3	33
90 - 94	47	53	-	-	25	-	9	22
95 - 99	8	13	-	-	6	-	1	14
# of Pensioners	3,794	4,458	106	170	994	111	13	72
Avg Weekly Pension	$ 232	$ 183	$ 187	$ 147	$ 89	$ 34	$ 59	$ 59

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.6. Density Of Contributions

Age	Males	Females
17	46%	44%
22	69%	65%
27	78%	77%
32	81%	81%
37	82%	84%
42	82%	85%
47	82%	87%
52	84%	87%
57	84%	88%
62	0%	0%

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

Table B.7. Rates of Entry Into Invalidity

Age	Males	Females
17	-	-
22	-	-
27	-	-
32	0.074	0.119
37	0.233	0.294
42	0.889	0.762
47	1.259	1.611
52	2.168	2.120
57	2.678	4.111

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

Table B.8. Probability of a Deceased Having Eligible Survivors & Their Average Ages

Age	Males		Females	
	Probability of Eligible Spouse	Avg # of Eligible Children	Probability of Eligible Spouse	Avg # of Eligible Children
17	0%	-	0%	-
22	8%	0.0	0%	0.0
27	6%	0.1	0%	0.2
32	28%	0.4	0%	0.5
37	26%	0.6	0%	1.0
42	29%	1.0	0%	1.0
47	34%	0.9	0%	0.9
52	31%	0.6	0%	0.6
57	36%	0.4	0%	0.1
62	34%	0.4	0%	0.1
67	29%	0.2	0%	-
72	11%	0.1	0%	-
77	9%	0.1	0%	-
82	9%	0.0	0%	-
87	7%	0.0	0%	-

Appendix C Income & Expenditure, 2010–14

	2010	2011	2012	2013	2014
Income					
Contribution Income	83.14	80.84	86.48	90.71	99.39
Investment Income	26.02	7.87	6.44	7.89	8.35
Other Income	-	0.00	-	-	0.36
Total Income	**109.16**	**88.72**	**92.92**	**98.60**	**108.10**
Expenditure					
Benefits					
Sickness Benefit	2.84	2.72	2.56	2.45	3.58
Maternity Benefit	3.16	3.00	2.02	2.14	2.84
Maternity Grant	0.47	0.41	0.68	0.58	0.36
Funeral Benefit	0.69	0.49	1.28	1.08	0.74
Age Pension	63.82	69.75	70.65	81.01	89.91
Invalidity Pension	2.42	3.06	8.98	7.94	2.34
Survivors Pension	3.91	4.39	4.00	2.09	4.81
Assistance Pension	0.60	0.50	0.03	0.40	0.28
Age Grant	0.41	0.40	0.33	0.36	0.63
Invalidity Grant	0.01	0.00	0.00	0.00	0.00
Survivors Grant	0.00	0.00	0.00	0.00	0.00
Total Benefit Expenditure	**78.34**	**84.73**	**90.53**	**98.05**	**105.50**
Administrative Expenditure	**11.68**	**11.17**	**11.70**	**11.97**	**10.56**
Total Expenditure	**90.02**	**95.90**	**102.23**	**110.02**	**116.06**
Excess of Income over Expenditure	**17.30**	**(7.14)**	**(11.32)**	**(12.47)**	**(7.95)**

Appendix D Benefit Experience & Analysis

Table D.1. Pensions In Payment, Awarded & Terminated, 2009- 2014

Pension Type	Paid in Dec. 2009	Awarded 2010 - 2014	Terminated 2010 - 2014	Paid in Dec. 2014	Average Weekly Pension December 2009	Average Weekly Pension December 2014
Age	3,189	1,190	231	4,148	$120.32	$143.42
Invalidity	97	81	74	104	$100.36	$89.26
Survivors	946	429	321	1054	$47.68	$55.02

Appendix E New Approach To Self-Employed Contributions

1. Registration & Education	• Each self-employed person has a unique SS #
	• Upon registration (or re-registration) he/she shall indicate what income band he/she is usually in. There shall be 4 income bands as shown below.
	    o A: 95% or more of the earnings limit (100%)
	    o B: 75% to 95% of the earnings limit (80%)
	    o C: 50% to 75% of the earnings limit (60%)
	    o D: less than 50% of the earnings limit (40%)
	        ▪ For each of these bands there shall be an implicit average insurable wage. The percentage in the brackets is the proportion to be applied to the wage ceiling to determine the implicit average insurable wage.
	• Unless changed by the individual (as permitted by certain guidelines) this income band will remain in effect until pension age. No changes to a higher band should be allowed after age 55.
	• As the earnings limit changes each year self-employed persons shall be informed of the expected contributions payable during the year for each band.

2. Contribution payments	• No forms required • No need to pay for any particular month or indicate how many weeks were worked • Pay in cash, by direct deposit, send a cheque or any other permitted form of payment indicating that it is to be applied to his/her "account" or SS #. (New options for paying contributions at banks and bank machines should be considered) A receipt for the amount paid shall be provided. The receipt will also indicate the total amount contributed in the current year and the target amount expected for the remainder of the year. • All contributions received during a calendar year are applied to that year only. There shall be no paying for previous years. • The self-employed person is never considered to be "in arrears" during the year. For the purpose of providing Letters of Good Standing, for example, the contributions made in the previous calendar year shall be used. • If actual contributions exceed the maximum amount due for the year, the excess shall be carried over to the next year.

3. Year-end internal calculations	• Using the amount contributed during the previous year and the income band selected, obtain the number of weeks paid for the year as: ○ Total contributions made / 10% / implicit avg. insurable wage • Self-employed persons shall be sent a statement early in the new year indicating the number of weeks of contributions made for the previous year and their eligibility to receive benefits during the current year.
4. Short-term benefits	• Similar to what is currently in place but instead the required contributions must have been made in the previous calendar year

5. Long-term benefits	• Same approach as currently in place:
	  ○ Must have made minimum # of contributions to qualify
	  ○ Pension amount calculated using average insurable earnings and benefit % based on # of contributions made

Following are examples of how the number of contribution weeks shall be determined for two different self-employed persons. For this illustration the wage ceiling is assumed to be $1,000 per week.

	Self-Employed #1	**Self-employed #2**
Income Band	Band A (at or above wage ceiling)	Band C (50% to 75% of wage ceiling)
Implicit Weekly Insurable Wage	$1,500 per week	$900 per week
Max. Contributions Expected	$1,500 x 52 x 10% = $7,800	$900 x 52 x 10% = $4,680
Actual Contributions Paid in the Year	$5,000	$4,000
# Contribution Weeks Made	$5,000/10%/$1,500 = 33 wks	$4,000 /10%/$900 = 44 wks

For the year illustrated above, the database shall reflect that Self-employed # 1 made 33 weekly contributions for the year at an average insurable wage of $1,500 per week.

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